

English

USER MANUAL

CRUX DSW



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SPECIALIZED BICYCLE COMPONENTS

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1. INTRODUCTION

THIS USER MANUAL CONTAINS IMPORTANT INFORMATION. PLEASE READ IT CAREFULLY AND STORE IN A CONVENIENT LOCATION.

This User Manual was drafted in the English language and may have been translated into other languages as applicable. This manual is not intended as a comprehensive assembly, use, service, repair, or maintenance guide. Please see your Authorized Specialized Retailer for all service, repairs, or maintenance. Your Authorized Specialized Retailer may also be able to refer you to classes, clinics, or books on bicycle use, service, repair, and maintenance.

This user manual is specific to the Crux DSW, hereinafter referred to as “the bicycle,” and should be read in addition to the Specialized Bicycle Owner’s Manual, hereinafter referred to as “the Owner’s Manual.” The User Manual contains important safety, performance, and technical information, which you should read before your first ride and keep for reference. You should also read the entire Owner’s Manual because it has additional important general information and instructions that you should follow. If you do not have a copy of the Owner’s Manual, you can download it at no cost at www.specialized.com or obtain it from your nearest Authorized Specialized Retailer or Specialized Rider Care.

Please note all instructions and notices are subject to change and updates without notice. Please visit www.specialized.com for periodic updates or contact Rider Care to make sure you have the latest information.

Additional safety, performance, and service information for specific components such as suspension on your bicycle, or for accessories such as helmets or lights, may also be available. Make sure that your Authorized Specialized Retailer has given you all the manufacturers’ literature that was included with your bicycle or accessories. In case of a conflict between the information in this user manual and information provided by a component manufacturer, please contact your nearest Authorized Specialized Retailer.

1.1. SYMBOLS

When reading this user manual, you will note various important symbols and warnings, which are explained below:



WARNING! The combination of this symbol and word indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death. Many of the Warnings say “You may lose control and fall.” Because any fall can result in serious injury or even death, we do not always repeat the warning of possible injury or death.



CAUTION: The combination of the safety alert symbol and the word CAUTION indicates a potentially hazardous situation, that, if not avoided, may result in minor or moderate injury or is an alert against unsafe practices.

The word **CAUTION** used without the safety alert symbol indicates a situation that, if not avoided, could result in serious damage to the bicycle or the voiding of your warranty.



This symbol alerts the reader to information that is particularly important.



Tech tips are useful tips and tricks regarding installation and use.



This symbol means that high-quality grease should be applied as illustrated.

1.2. WARRANTY

Please refer to the written warranty provisions provided with your bicycle, or visit www.specialized.com. A copy is also available at your Authorized Specialized Retailer.

2. GENERAL INFORMATION

2.1. INTENDED USE CONDITION 2

GENERAL PURPOSE RIDING



Bicycles designed for riding Condition 1, plus smooth gravel roads and improved trails with moderate grades where the tires do not lose ground contact. These bicycles are intended for paved roads, gravel or dirt roads that are in good condition, and bicycle paths.

These bicycles are NOT intended for off-road or mountain bicycle use, or for any kind of jumping. Some of these bicycles have suspension features, but these features are designed to add comfort, not off-road capability. Some come with relatively wide tires that are well suited to gravel or dirt paths. Some come with relatively narrow tires that are best suited to faster riding on pavement. If you ride on gravel or dirt paths, carry heavier loads, or want more tire durability talk to your Authorized Specialized Retailer about wider tires.



For more information on the intended use and structural weight limits for the frame and components, please refer to the Owner's Manual.

2.2. WEIGHT LIMITS

MODEL	CARGO WEIGHT LIMIT	STRUCTURAL WEIGHT LIMIT
	kg/lb	kg/lb
All models	Front: 0/0	125/275
	Rear: 0/0	

CARGO WEIGHT LIMIT: The maximum cargo weight the bicycle is designed and tested to support structurally.

STRUCTURAL WEIGHT LIMIT: The maximum total weight (rider, bicycle, and cargo) the bicycle is designed and tested to support structurally.



WARNING! The specified cargo weight limit applies only to cargo carried through the use of compatible equipment and seat bags. If the cargo weight limit of the bicycle differs from the cargo weight limit set by the rack or seat bag manufacturer, always use the lowest limit. If you add any other load-bearing accessories, including, but not limited to, baskets and child carriers, you do so at your own risk in that these accessories have not been tested for compatibility, reliability, or safety on your bicycle. Failure to follow this warning may result in serious personal injury or death.

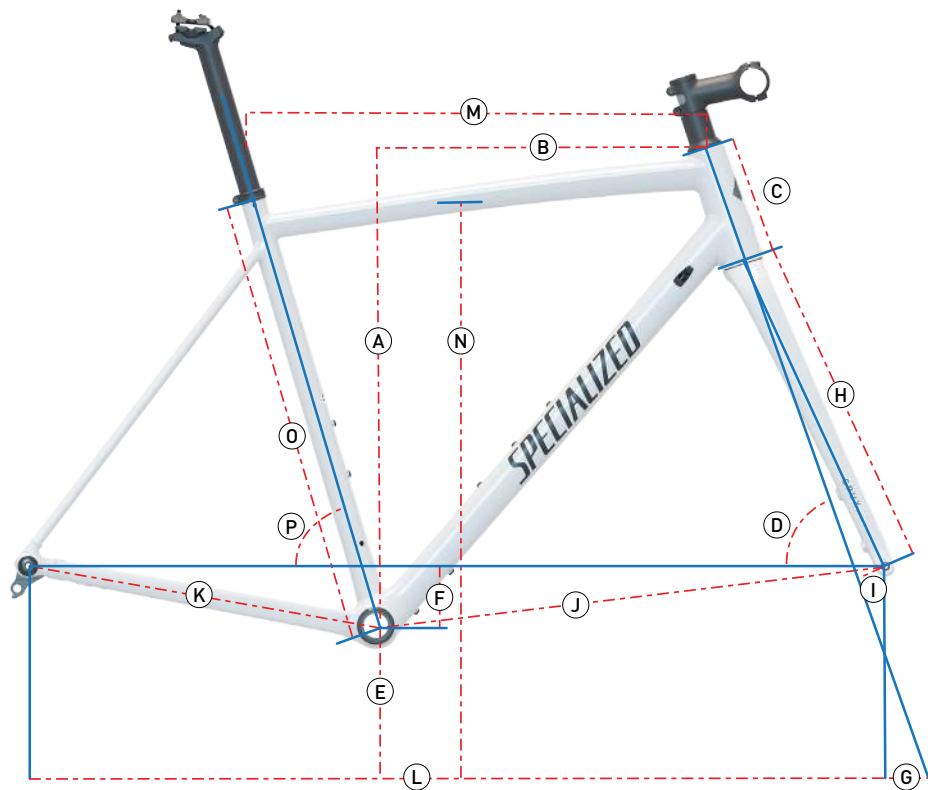


CAUTION: Attaching items such as panniers, bags, water bottle cages, storage boxes, racks, or fenders to your bicycle can damage the frame. Using frame protection, such as protective decals, may help prevent damage from occurring.



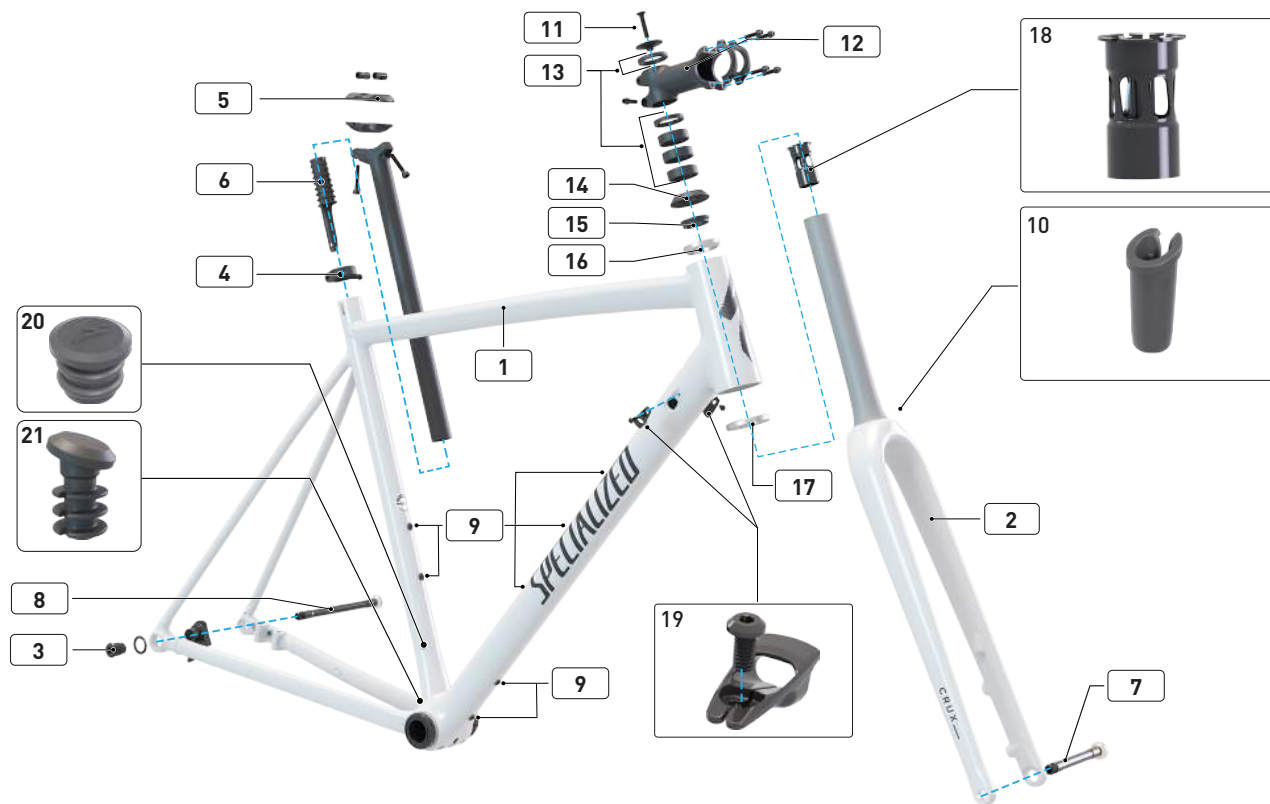
For more information on the intended use and structural weight limits for the frame and components, please refer to the Owner's Manual.

3. GEOMETRY



	FRAME SIZE	49	52	54	56	58	61
A	Stack (mm)	530	547	560	578	598	621
B	Reach (mm)	375	382	388	397	405	415
C	Head Tube Length (mm)	100	115	130	147	167	190
D	Head Tube Angle (°)	70.5	71.3	71.5	72	72.3	72.5
E	BB Height (mm)	284		286			
F	BB Drop (mm)	74		72			
G	Trail (mm)	74	69	67	64	62	60
H	Fork Length, Full (mm)	401					
I	Fork Rake Offset (mm)	50					
J	Front Center (mm)	594	600	608	618	630	644
K	Chainstay Length (mm)	425					
L	Wheelbase (mm)	1008	1014	1023	1033	1045	1059
M	Top Tube Length, Horizontal (mm)	512	539	549	568	582	599
N	Bike Standover Height (mm)	749	772	794	816	841	866
O	Seat Tube Length (mm)	466	496	521	546	576	606
P	Seat Tube Angle (°)	75.5	74		73.5		

4. SPECIFICATIONS



4.1. GENERAL SPECIFICATIONS

	DESCRIPTION		PART #	TOOL SIZE	in-lbf	Nm
1	Frame					
2	Fork		S212300017			
3	Rear Derailleur Hanger (SRAM UDH)		S202600002	8 mm	221	25
4	Seat Post Collar Steel Bolt		S194700002	4 mm	55	6.2
5	Seatpost	Front Rail Clamp Bolt		5 mm	88	10
		Rear Rail Clamp Bolt		5 mm	88	10
6	*Di2 Battery Sleeve		S186800006			
7	Front Axle		S200200010	6 mm	133	15
8	Rear Axle		S200200011	6 mm	133	15
9	Water Bottle Bolts		S220500004	3 mm	25	2.8
10	Cable Housing Ferrule (7.5 mm angled ICR grommet)		S179900013			
11	Stem Top Cap		S202500013	4 mm		
12	Stem	1: Steerer Bolts		4 mm	44	5
		2: Faceplate Bolts		4 mm	44	5
13	Stem Spacers					
14	Headset Cover		S212500024			
15	Compression Ring			S192500005		
16	Upper Headset Bearing			S092500002		
17	Lower Headset Bearing			S162500005		
18	Expander Plug		S202500011	6 mm	45	5.1
19	ICR Port 5/5 mm		S206500013	2.5 mm	18	2
20	*Front Derailleur Plug (Wireless)		S179900015			
21	*Front Derailleur Plug (BB) (Wireless)		S246500013			

*Not all models are equipped with all the above components.

All models are compatible with electronic shifting (wired or wireless) and are compatible with 1x or 2x mechanical configurations.

4.2. TORQUE SPECIFICATIONS



WARNING! Correct tightening force on fasteners (nuts, bolts, screws) on your bicycle is important for your safety. If too little force is applied, the fastener may not hold securely. If too much force is applied, the fastener can strip threads, stretch, deform, or break. Either way, incorrect tightening force can result in component failure, which can cause you to lose control and fall. Where indicated, ensure that each bolt is torqued to specification. After your first ride, and consistently thereafter, recheck the tightness of each bolt to ensure secure attachment of the components.



CAUTION: Ensure that all contact surfaces are clean and bolt threads are greased or have a thread-locker compound (refer to the instructions for each bolt) prior to installation.



Many bolts have a blue thread-lock patch on the threads to help secure the bolt under torque. Repeated installation and removal of a bolt may reduce the effectiveness of the patch. However, it can be replaced with the application of a liquid blue thread locker.



For all non-Specialized components, please refer to the manufacturer's manuals for tools and torque settings.

The following tools are required for installation of this product:

2, 2.5, 3, 4, 5, 6 mm socket-style Allen key bits	Torque wrench	High-quality grease
Cable housing cutters	Carbon assembly compound (fiber paste)	Thread-locker

5. GENERAL NOTES ABOUT ASSEMBLY

This manual is not intended as a comprehensive assembly, use, service, repair, or maintenance guide. Please see your Authorized Specialized Retailer for all service, repairs, or maintenance. Your Authorized Specialized Retailer may also be able to refer you to classes, clinics, or books on bicycle use, service, repair, and maintenance.



In order to successfully build your Crux DSW bicycle, it's very important to follow the order of operations as outlined in this manual. Modifying the order of assembly will result in a longer build process.



Assembly of the front end of the bicycle is easiest with the rider's fit already determined (the steerer tube doesn't need to be cut at this time; it can stick out the top of the stem) prior to routing all the housings and wires through the frame and fork.

To determine fit, it's recommended to use a fit tool. If this isn't possible, perform a basic assembly of the wheels, drivetrain, and front-end components without the brakes and housings. Once the fit is complete, all the components need to be removed in order to route the housings and wires.



Many bolts have a blue threadlocker patch on the threads to help secure the bolt under torque. Repeated installation and removal of a bolt may reduce the effectiveness of the patch. However, it can be replaced with the application of a liquid blue threadlocker.



WARNING! Due to the high degree of complexity of the Crux, proper assembly requires a high degree of mechanical expertise, skill, training and specialty tools. Therefore, it is essential that the assembly, maintenance and troubleshooting be performed by an Authorized Specialized Retailer.

5.1. TIRE SIZES

Tire sizes vary significantly from brand to brand. CEN standards require a minimum of 6 mm of clearance between the frame/fork and the tires. When choosing a wheel and tire combo, factor in enough clearance for the conditions, setup, and wheel flex.

5.2. BOTTOM BRACKET

- The Crux DSW frame uses a 68 mm standard BSA threaded design bottom bracket.
- Before installing the bottom bracket (BB) and crank, make sure all housings and wires are routed through the frame.
- Grease the threads, install the BB, and torque according to the manufacturer's instructions.



CAUTION: Do not face the bottom bracket shell! This can prevent proper installation of the crank. Your specialized frame does not require any pre-installation preparation for the bottom bracket shell, as all surfaces have been precisely machined to specific tolerances at the factory for proper interface with a compatible crankset. Please refer to the manufacturer's instructions for crank and bottom bracket installation.



CAUTION: Always use a bottom bracket equipped with a sleeve between the two cups. Running a bottom bracket without the sleeve can result in housings and/or wires contacting the bottom bracket spindle, which can result in wear.

5.3. RECOMMENDED TIRE PRESSURES

The tires must be inflated, periodically checked and re-inflated using a pump with an accurate pressure gauge.

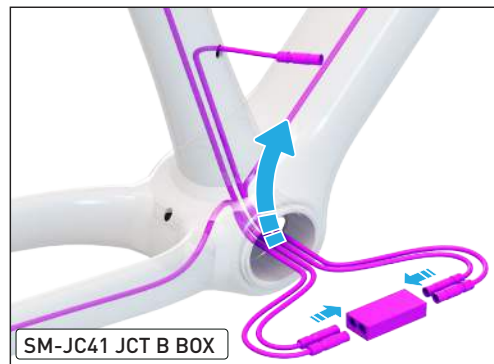
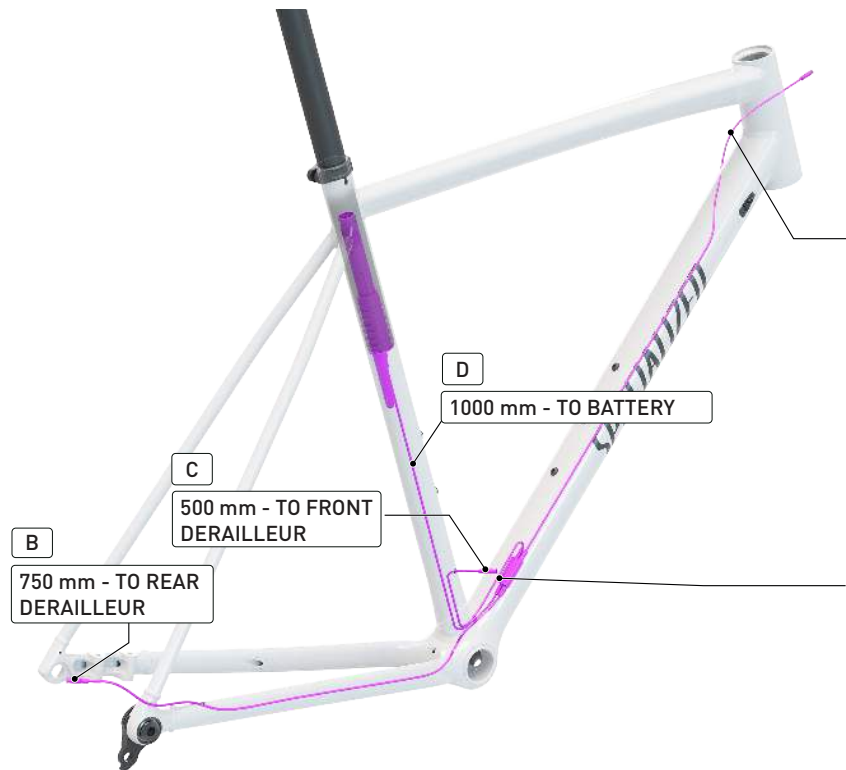
Pump the tires up to your desired pressure. Refer to the tire's sidewall for pressure range. Check your wheel manual or decal on the rim itself to see if your wheels have a maximum pressure limit. Do not exceed it.



WARNING! Never inflate a tire beyond the maximum pressure marked on the tire's sidewall or the maximum pressure limit specified by the wheel manufacturer, whichever is lower. Failure to follow this warning may cause the tire to blow off the rim and may result in serious personal injury.

6. BRAKE AND SHIFT ASSEMBLY

6.1. SHIFTING - ELECTRONIC WIRED SYSTEM



FRAME WIRING LENGTHS

	LOCATION	QTY	LENGTH
A	JCT B Box to Cockpit (Shifter)	1	1400 mm
B	JCT B Box to Rear Derailleur	1	750 mm
C	JCT B Box to Front Derailleur	1	500 mm
D	JCT A Box to Battery (Seatpost)	1	1000 mm

SHIMANO DI2

- Route a 1400 mm wire from the drive side ICR port on the down tube, down the down tube, and out the bottom bracket hole.



The Di2 wire must be routed into the down tube before the rear brake housing.

- Route a 750 mm wire starting from the chainstay port and out the bottom bracket hole.
- Route a 500 mm wire starting from the seat tube front derailleur port and out the bottom bracket hole.
- Route a 1000 mm wire down from the top of the seat tube and out the bottom bracket hole.
- Install the battery sleeve on the battery, then install the battery/sleeve assembly in the seatpost.
- Plug the 1000 mm battery wire into the battery, then install the seatpost as described in section 7.
- Plug the four wires exiting the bottom bracket shell into a Junction B box, then place the Junction B box and the wires in front of the bottom bracket shell.



To prevent the JCT B box from rattling, wrap the box in a bit of foam before placing it in front of the bottom bracket shell.

6.2. SHIFTING - MECHANICAL SYSTEM (FRONT & REAR DERAILLEUR FULL-LENGTH HOUSING)



ROUTE THE REAR DERAILLEUR HOUSING:

- Install full-length housing to the rear derailleur (green line). Feed the housing through the non-drive side ICR port, down the down tube, over the bottom bracket and then out of the hole near the BB. Internal routing kit and magnets are helpful.

ROUTE THE FRONT DERAILLEUR HOUSING:

- Install full-length housing to the front derailleur (blue line). Feed the housing through the drive side ICR port, down the down tube, under the bottom bracket, then out of the hole above and behind the BB. Internal routing kit and magnets are helpful.



If you choose to install a dropper post, route the dropper housing down to the bottom bracket and up the seat tube above the bottom bracket shell.



For front derailleurs not compatible with full-length housing, use the stepped cable stop (S172000004) in the hole above and behind the BB.

6.3. BRAKES



ROUTE THE REAR BRAKE HOSE:

- Run the rear brake hose in through the chainstay ICR port, over the bottom bracket shell, and up the down tube.
- Route the brake hose out the drive side ICR port at the top of the down tube.
- Install a churro (foam sleeve) over the brake housing and slide it down into the down tube.
- Install the caliper on the chainstay.
- Complete the rear brake installation according to the brake manufacturer's instructions.

ROUTE THE FRONT BRAKE HOSE:

- Run the front brake housing in through the lower ICR port in the fork and guide it up the fork leg until it exits at the ICR port on the fork crown.
- Install a grommet over the brake housing and into the upper fork ICR port.
- Complete the front brake installation according to the brake manufacturer's instructions.

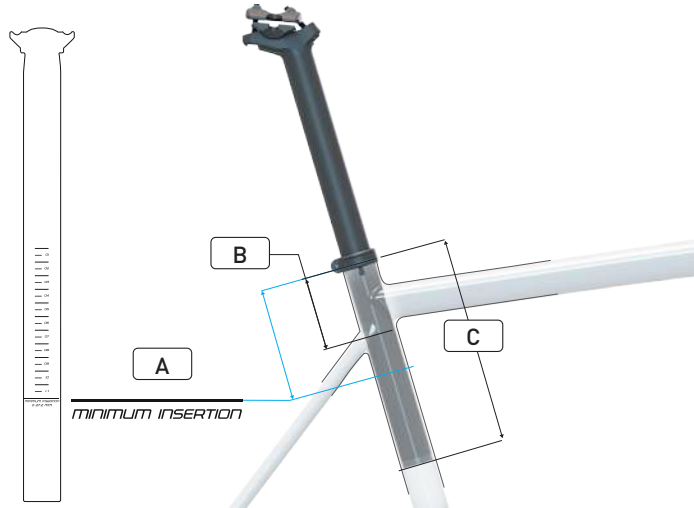
7. SEATPOST ASSEMBLY

7.1. SEATPOST CLAMP



- Make sure the seat collar bolt is facing toward the back of the bike.
- If using Shimano Di2, install the battery in the seatpost using the grommet assembly, then plug the seat tube wire into the battery.
- Apply grease to the seat tube, then insert the seatpost into the seat tube.
- Grease the seat collar bolt and spacer, then use a 4 mm Hex key to torque the bolt to 55 in-lbf / 6.2 Nm.

7.2. SEATPOST MINIMUM/MAXIMUM INSERTION



Both the frame and seatpost have minimum insertion requirements. In addition, the frame has a maximum insertion requirement to prevent damage to the frame and seatpost.

- **MINIMUM INSERTION:** The seatpost must be inserted into the frame deep enough so the minimum insertion/maximum extension (min/max) mark on the seatpost is not visible (A). The frame requires a minimum of 75 mm of insertion (B).
- If the seatpost and frame minimum insertion requirements differ from each other, always use the longer minimum insertion. For example, if the frame requires 75 mm, but the seatpost requires 90 mm, then 90 mm is the minimum insertion required.

- **MAXIMUM INSERTION:** The seat tube is reamed to a specified maximum insertion depth (C), which varies for each frame size. This ream depth limits the insertion depth of the seatpost.
- Once the saddle height is determined, torque the seat collar bolt to 55 in-lbf / 6.2 Nm.

MIN/MAX SEATPOST INSERTION

FRAME SIZE	49	52	54	56	58	61
Min insertion (mm)	75					
Max insertion (mm)	180	210	230	260	260	260



If the desired seat height cannot be achieved within the minimum and maximum insertion requirements, the seatpost should be replaced with a shorter or longer one.

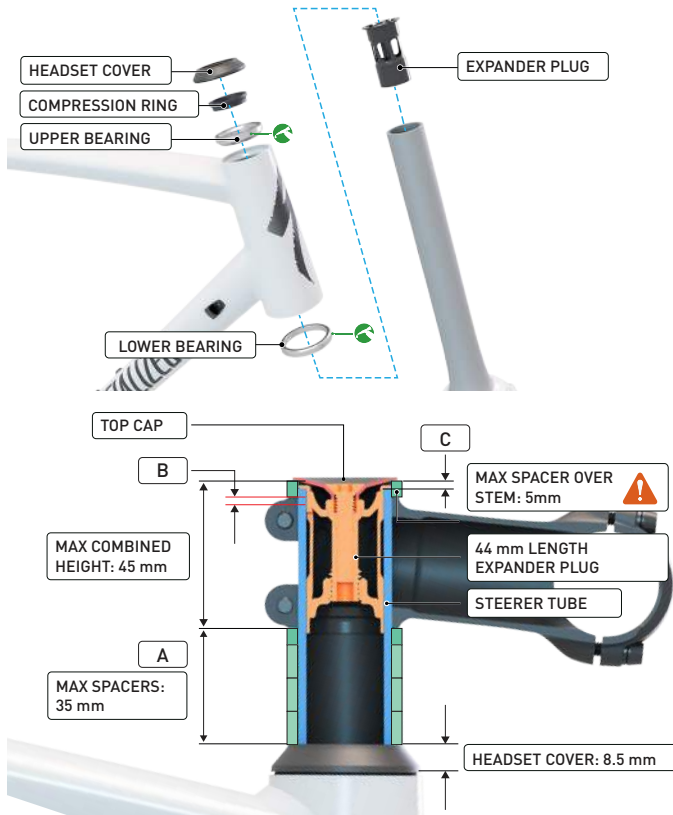


WARNING! Failure to follow the seatpost and frame insertion requirements may result in damage to the frame and/or seatpost, which could cause you to lose control and fall.



WARNING! For general instructions regarding the installation of the seatpost, refer to the appropriate section in the Owner's Manual. Riding with an improperly tightened seatpost can allow the saddle and seatpost to slide down, which can damage the frame and cause you to lose control and fall.

8. FORK & STEM ASSEMBLY



- Install the front end (fork, headset, headset spacers, stem, handlebar, wheels) on the frame, then determine the rider's fit. Do not install more than 35 mm of spacers (A) between the stem and the headset cover.
- Trim the steerer tube so the final cut is 3 mm below the top of the stem (B) (or 3 mm below the top of the spacer (C) if a 5 mm spacer is used).
- Install the steerer tube expander plug into the steerer tube. Using a 6 mm hex bit, torque the plug to 45 in-lbf / 5.1 Nm.
- When installing the headset for the final assembly, grease the bearings and compression ring.
- Install the headset cover, spacers, and stem, followed by the top cap and bolt. Using a 4 mm Hex key, torque the bolt to 44 in-lbf / 5.0 Nm.
- Once the bike is fully assembled, adjust the headset using the front brake to determine if there's any headset looseness.
- The headset cover measures 8.5 mm thick. The maximum spacer stack height between the headset cover and the stem is 35 mm, for a total of 43.5 mm.
- The maximum combined height of the stem's steerer tube clamp and any spacers placed above the stem (max 5 mm) must not exceed 45 mm.

i Make sure to determine the appropriate rider stem height before cutting the steerer tube. Ideally, the steerer tube should be cut 3 mm below the top of the stem. Alternatively, one optional 5 mm solid spacer may be placed above the stem. In that case, the steerer tube should be cut 3 mm below (C) the 5 mm solid spacer.

WARNING! The stem must be fully supported by the expander plug. Do not place more than one 5mm solid spacer above the stem. In addition, the combined height between the stem and optional 5 mm spacer (from the bottom of the stem to the top cap) must not exceed 45 mm. This is important if the originally equipped stem is changed with an aftermarket one. Exceeding 45 mm or placing more than one 5 mm solid spacer above the stem may cause the stem to crush the steerer tube which may result in serious injury or death.

WARNING! The bicycle comes with one 5 mm solid spacer and 35 mm of scalloped spacers. Only the solid spacer should be used above the stem. The scalloped spacers should only be used below the stem, i.e., between the stem and the headset cover.

WARNING! Do not apply grease or carbon assembly compound (carbon paste) between the stem and the steerer tube, and do not twist the stem onto the steerer tube. This can result in damage to the composite surface, which may result in a catastrophic failure of the fork, resulting in serious personal injury or death.



9. REAR DERAILLEUR HANGER

All bicycle models are compatible with UDH (Universal Derailleur Hanger).



- Install the UDH hanger (A) into the frame dropout and rotate it forward until it's completely seated (B) in the hanger pocket or contacts the rotational stop tab.

i The hanger must be completely seated in the hanger pocket or against the frame stop tab when tightened to the specified torque.

- Install the UDH washer (C), then thread the UDH bolt (D) through the washer and into the hanger.
- Using a reverse torque wrench and 8 mm hex bit, torque the bolt to 25 Nm / 221 in-lbf. The UDH bolt is left-hand threaded.



- Apply grease to the rear thru-axle (E) threads, then install the wheel, thru-axle, and conical washer. Using a torque wrench and 6 mm hex bit, torque the thru-axle to 15 Nm / 133 in-lbf.

WARNING! Before your first ride and regularly thereafter, ensure the thru-axle and UDH are torqued to specification and that the UDH has not moved. Thru-axles and the UDH can loosen over time depending on the type and frequency of use. This is especially true if they were not installed correctly. Riding with a loose thru-axle or UDH can result in a loss of control of the bicycle and can cause you to fall.



10. GENERAL NOTES ABOUT MAINTENANCE

This bicycle is a high-performance bicycle. All regular maintenance, troubleshooting, repair, and parts replacement must be performed by an Authorized Specialized Retailer. For general information regarding the maintenance of your bicycle, please refer to the Owner's Manual. In addition, routinely perform a mechanical safety check before each ride as described in the Owner's Manual.

- Great care should be taken so as not to damage the frame material. Damage may result in a loss of structural integrity, which may result in a catastrophic failure. This damage may or may not be visible during inspection. Before each ride and after any crash, you should carefully inspect your bicycle for any gouging, scratches through the paint, chipping, bending, or any other signs of damage. Do not ride if your bicycle shows any of these signs. After any crash, and before you ride any further, take your bicycle to an Authorized Specialized Retailer for a complete inspection.
- While riding, listen for any creaks, as a creak can be a sign of a problem with one or more components. Periodically examine all surfaces in bright sunlight to check for any small hairline cracks or fatigue at stress points, such as welds, seams, holes, and points of contact with other parts. If you hear any creaks, see signs of excessive wear, discover any cracks, no matter how small, or any damage to the bicycle, immediately stop riding the bicycle and have it inspected by your Authorized Specialized Retailer.
- Lifespan and the type and frequency of maintenance depends on many factors, such as use, rider weight, riding conditions, and/or impacts. Components may be subject to increased wear at different rates, depending on the component. Drivetrain and brake components are especially subject to wear. Periodically have your Authorized Specialized Retailer inspect your bicycle and components for wear.
- Exposure to harsh elements, especially salty air (such as riding near the ocean or in the winter), can result in galvanic corrosion of components such

as the crank spindle and bolts, which can accelerate wear and shorten the lifespan. Dirt can also accelerate the wear of surfaces and bearings. The surfaces of the bicycle should be cleaned before each ride. The bicycle should also be maintained regularly by an Authorized Specialized Retailer, which means it should be cleaned, lubricated, and (partially) disassembled and inspected for signs of corrosion and/or cracks. If you notice any signs of corrosion or cracking on the frame or any component, the affected item must be replaced.

- Regularly clean and lubricate the drivetrain according to the drivetrain manufacturer's instructions.
- Do not use a high-pressure water spray to wash your bicycle. Even water from a garden hose can penetrate seals, and water may seep into components, such as cranks, bearings, or electrical components, potentially causing damage. Use a clean, damp cloth and bicycle cleaning agents (where appropriate) for cleaning.
- Do not expose the bicycle to prolonged direct sunlight or excessive heat, such as inside a car parked in the sun or near a heat source such as a radiator.



WARNING! Failure to follow the instructions in this section may result in damage to the components on your bicycle and will void your warranty, but, most importantly, may result in serious personal injury or death. If your bicycle exhibits any signs of damage, do not use it and immediately bring it to your Authorized Specialized Retailer for inspection.



WARNING! Use a repair stand to support the bicycle during assembly or maintenance, and a bicycle rack for transportation.

When placing the frame and/or bicycle in a repair stand, clamp the stand to the seatpost and not the frame. Clamping the frame can cause damage to the frame that may or may not be visible, and you may lose control and fall.

10.1. REPLACEMENT PARTS AND ACCESSORIES

Specialized replacement parts and accessories are available through your Authorized Specialized Retailer.

English

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