

***cervélo***

SHIMANO Di2 INSTALLATION ON S5



## INSTALLING SHIMANO DURA ACE Di2 SHIFTING SYSTEMS

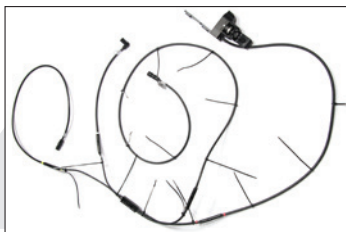


**Note** – these instructions and pictures are for assembling the Shimano Dura Ace Di2 system (Internal Spec) on the Cervélo S5 frame. The Shimano Ultegra Di2 system utilizes different technologies and parts which require separate instructions for installation. Please refer to the Cervélo website [www.cervelo.com](http://www.cervelo.com) for more information.

## FRAMESET INSTALLATION PROCEDURE

It is recommended to install the Di2 Internal Spec system as a first step when building up a bare S5 frame.

When retrofitting an existing bike, it is best to disassemble the bicycle completely. Whereas manual controls can utilize the ICS3 system to direct cables, the electronic cables used in this system require routing through the frame from the insertion point at the head tube, and at the connection points at the bottom bracket (BB), chainstay, and seat tube. This process is easiest to accomplish without other components mounted.



**TIP:** If the Bottom Bracket has been installed, please refer to the manufacturer's instructions for the appropriate removal procedure.

### Parts Required:

- Shimano Dura-Ace Di2 wiring harness – Junction B (EW-7975-A-1)
- Two M4 button head 10 mm bolts
- Cervélo Di2 rubber grommets for top tube and chainstay

### STEP 1: Disassembly of Internal Wiring Harness

- The Shimano Dura-Ace Di2 system comes with the internal electric wire control cable EW-7975-A-1 (Junction B) pre-assembled. The individual connections must be separated to route them internally through the S5 frame.

- Gently pull apart the cables at the connection points and set aside for assembly.

### STEP 2: Shifter Control Cable Installation

- Using the rearward cable hole in the top tube, (covered by E-Wire sticker) slide the small connector end of Shimano shifter control cable through the hole and into the frame. This cable has black connector ends, and is marked Junction on the silver tag at the large end.



- The E-Wire hole on the S5 top tube is designed to be elongated (7 mm wide x 8 mm long) in order to accept the cable as delivered with zip ties attached. To insert, locate the buckle of the first Shimano installed zip tie towards the rear of the frame, and with gentle force, press it through the opening and into the frame.



**TIP:** The zip ties are mounted to the control cable by design — their function is to reduce cable noise inside the frame. It is recommended to leave these in place to reduce unwanted cable rattle.

- Push the cable into the bike as far as next (second) zip tie of the control cable. The black end of the cable should now be visible when looking through the head tube into the top tube. Pull the cable forward to draw it out through the upper opening in the head tube.
- Continue to feed the rest of the cable and zip ties through the top tube leaving just enough for the large junction cable end to reach the front of the head tube at a later stage. Pull the other end gently throughout the insertion process ensuring that the cable does not get caught on the stainless steel ICS3 tubes running down the rear of the head tube.

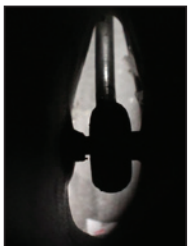


- Once the cable is all the way through, feed the cable back into and down the head tube through the upper opening so that it is hanging straight down out of the lower head tube opening.

**TIP:** Reach inside the head tube opening towards the rear to locate the ICS3 tubes. The Di2 cables must run down one side or the other of these tubes, by pulling carefully through the top tube to minimize the chance that the zip ties will get caught on the internal structure.

Next the cable must be routed into the down tube and out of the bottom bracket. This is best accomplished by running a wire through the frame to attach to the control cable end protruding from the head tube, and pulling the whole system out through the BB.

- Remove the BB cable guide by using a small flat screwdriver to gently pry the BB cable guide from the frame to expose the cable access port.
- Insert a spare shift cable (wire only – no casing) into the large forward hole, oriented with the ball end entering first.
- Feed the cable through to run along the bottom of the down tube, taking care to ensure that it runs underneath the interior ICS3 cable fittings located near the head tube. These can be seen by viewing through the forward BB cable access port towards the head tube, and shining a light or using a backlight behind the head tube.



- Continue to feed the cable through until the ball end is visible inside the head tube.
- Pull the ball end of the cable out through the lower head tube opening, taking care not to pull the other end of the cable inside the frame.
- Overlapping the shift cable and the Di2 control cable by approximately 5cm, use electrical tape to connect the cables together. Ensure that both the Di2 cable connector and the ball end of the shift cable are firmly affixed to the dual cables with no protrusions so that they will not snag on the ICS3 fittings.



**é TIP:** There is considerable friction when pulling the cables through the tube, as the zip ties snag on the internal features, so ensure the taped connection is secure. Be sure to remove all tape once the cable routing is completed.

- Feed the joined Di2 cable connector head back through the lower head tube opening and into the down tube by pulling the shift cable wire out through the BB. Continue until the taped connector head protrudes through the large forward hole of the cable access port.



- Remove all tape joining the cables together and set the shift cable wire aside.
- Carefully push the Di2 connector end back into the BB shell recess through the large forward hole of the cable access port.

- Reaching through the drive-side of the BB, locate the connector end. Pull the connector out of the frame through the drive-side BB, stretching it gently to remove slack and ensure the straightest routing possible.



- Pull the red connector end out through the drive-side of the BB.



### Step 3: Battery Holder

- Feed the connector end of the Shimano battery housing cable (Red connector) into the battery cable access hole.



- Using two M4 screws (button head, 10mm length), install the Battery Holder on the frame mounts and tighten the bolts to a maximum of **3Nm**.



Note that the screws provided with the battery holder by Shimano do not fit the S5 frame.

#### STEP 4: Rear Derailleur Control Cable

- Insert the connector end of the Shimano rear Derailleur control cable (Yellow connector) through the opening on the upper face of the drive-side chainstay, and feed the cable through the chainstay until it appears in the bottom bracket shell recess.



- Pull the connector out through the drive-side of the BB. Leave approximately equal lengths of cable protruding from the chainstay and bottom bracket.



- Install the S5 Di2 chainstay rubber cable grommet over the cable to ensure that the cable junction end does not fall into the chainstay. Ensure the groove in the edges of the grommet seats properly on the chainstay hole, starting from the front and working backwards.



#### STEP 5: Front Derailleur Control Cable

- Insert the connector end of the Shimano front Derailleur control cable (White connector) from the top into the front Derailleur cable hole found at the junction of the seat tube and the chainstay. Feed the cable through until the connector appears in the bottom bracket shell recess.



- Pull the connector out the drive-side of the BB. Leave enough cable above the chainstay to reach the front Derailleur mount.



#### STEP 6: Connecting the Junction Box

- All four cable connectors should now be protruding through the drive-side of the BB shell.
- Following Shimano instructions, attach the colour-coded junction box cables to the appropriate control cables outside of the frame.



**TIP:** Before making the initial connections for any of the cables, slide the supplied heat shrink tubes onto each cable, and push them far enough along the cable so as to not interfere with the set up. This means that if the initial connections are successful, you will not need to break them in order to seal the system.

#### STEP 7: Attaching the Derailleurs

- Install the Di2 front Derailleur to the front Derailleur mount and adjust the position according to Shimano's instructions. Apply grease to the threads of the bolt and tighten to **5Nm to 7Nm**.
- Match up the arrows on the top of the Derailleur and the control cable (marked FD on a silver tag), and plug the end of the FD cable into the recessed port of the front Derailleur until they connect with a click.



- Install the Di2 rear Derailleur to the rear Derailleur hanger according to Shimano's instructions. Apply grease to the threads of the bolt and tighten to **8Nm to 10Nm**.
- Match up the arrows on the top of the rear Derailleur and the control cable (marked RD on a silver tag), and plug the end of the RD cable into the recessed port of the rear Derailleur until they connect with a click.



### Parts Required:

- Shimano Di2 tool TL-EW01
- Shimano Dura-Ace Di2 wiring harness – Junction A (EW79A)



### STEP 8: Connecting the Levers

To complete the lever connections it is first necessary to install the fork, headset, stem, handlebars, and Di2 Dual Control Levers on the bike. Refer to the component manufacturer's installation instructions, Cervélo S5 Supplementary Manual, and Cervélo Owner's Manual for installation information.



- Carefully fold back the rubber hoods on the Dual Control levers to expose the cable port doors on the inside surface of the lever.



- Using the wide, two-pronged end of the TL-EW01 tool or a fingernail, pry open the cable port at the rearward door edge to expose the connectors.



- Locate the small red connector end of the EW79A Junction B cable and orient the raised edge to fit into the grooved surface of the cable port door of the right lever (marked with red dot).
- Using the narrow end of the TL-EW01 tool, press the connector end into the connector port until they connect with a click.



- Repeat the process to locate and insert the white connector end into the left lever cable port (marked with white dot).
- Run the cables from the levers along the underside of the handlebars and beside the stem in order to connect the large black harness connector (marked Junction A on the silver tag) protruding from the E-Wire hole on the top tube.

- Align the arrows on both black connector ends and press together until they connect with a click.



**TIP:** Use electrical tape to secure the cables running from the levers to the handlebars under the area to be covered with bar tape. This allows you to position the Junction A box easily. It is designed to be attached to the rear brake cable casing using the included zip ties once the brake cables are installed.



- Install the rubber top tube grommet into the rearward E-Wire cable hole and around the shifter control cable to hold it firmly in place.

## STEP 9: Testing and Sealing the Connectors

- Open the lever on the battery holder and insert a charged Shimano battery SM-BTR1 by aligning the raised surface (marked Shimano) on the battery with the groove in the holder. Slide the battery into the holder body until they connect with a click. Close the lever until it snaps shut, locking the battery in place.
- Test the system for circuit connections by pressing the shift buttons on the Di2 Dual Control levers and confirm that each button operates as intended.
- Once performance is confirmed, seal the four connector junctions located outside the drive-side BB (Junction B) with the heat shrink tubes positioned on the cables. Slide the heat shrink tubes over the joined connectors and use a heat gun or hairdryer to shrink the tubes and hold them permanently in place.



tube and down tube. If necessary, some electrical tape can be used to hold them in place.

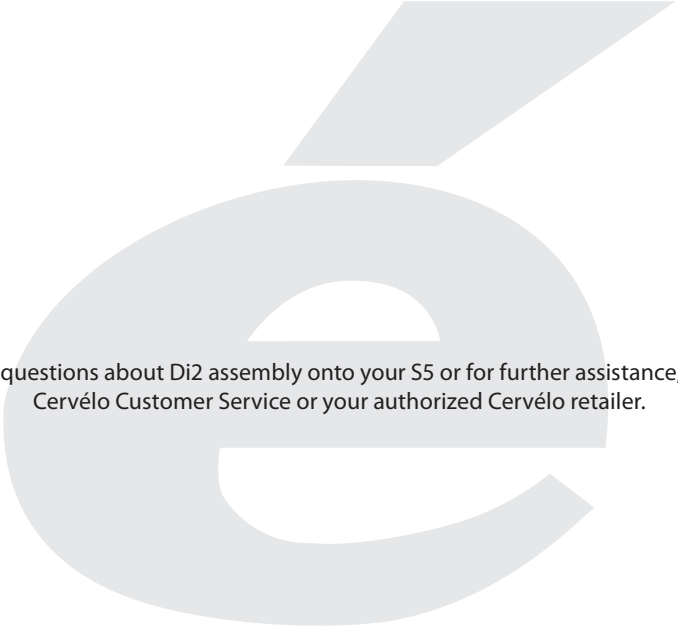


- Install the chosen bottom bracket per the manufacturer's directions ensuring that all of the cables are routed smoothly above or below it.
- Locate the S5 single-bend cable guide nipple over the middle 5mm hole in the cable-port bridge, and push firmly to secure the guide in place. When seated properly, the guide should sit flush with the bottom bracket shell.
- Complete assembly of the S5 bicycle. Refer to the component manufacturer's installation instructions, Cervélo S5 Supplementary Manual, and Cervélo Owner's Manual for additional information.



**TIP:** Take care to angle the heat source so as not to discolour the paint on the BB area.

- Once all connections have cooled, push the Junction B box with attached wires back into the drive-side of the BB shell recess and up into the hollow area above the BB located between the seat



If you have any questions about Di2 assembly onto your S5 or for further assistance, please contact Cervélo Customer Service or your authorized Cervélo retailer.



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