

Kalk Motor Replacement

Note for [REDACTED]: I realized now that the new motor phase cables are not labelled. After you have the old motor removed, please place it side-by-side with the new motor and label the phase cables based on the positions of the cables on the original motor.

I would like to reiterate that the hardware assembled on the Kalk is aluminum. Loctite 243 is used in production on nearly every bolt and can make the bolts appear very tight.

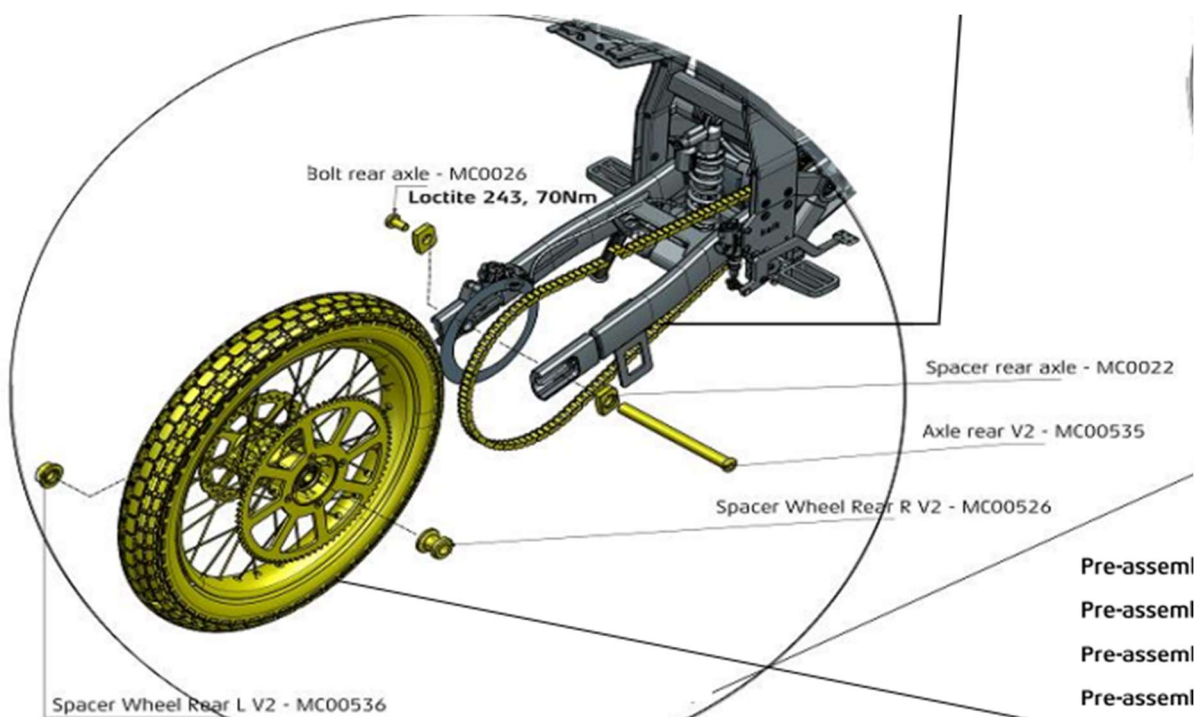
This significantly increased the need to be very careful not to strip anything during disassembly and reassembly. It is imperative that the correct tools/bits are used for each piece of hardware.

During re-assembly, many bolts have a specific torque spec and should have Loctite 243 applied during install. This is noted within the blow-out images below.

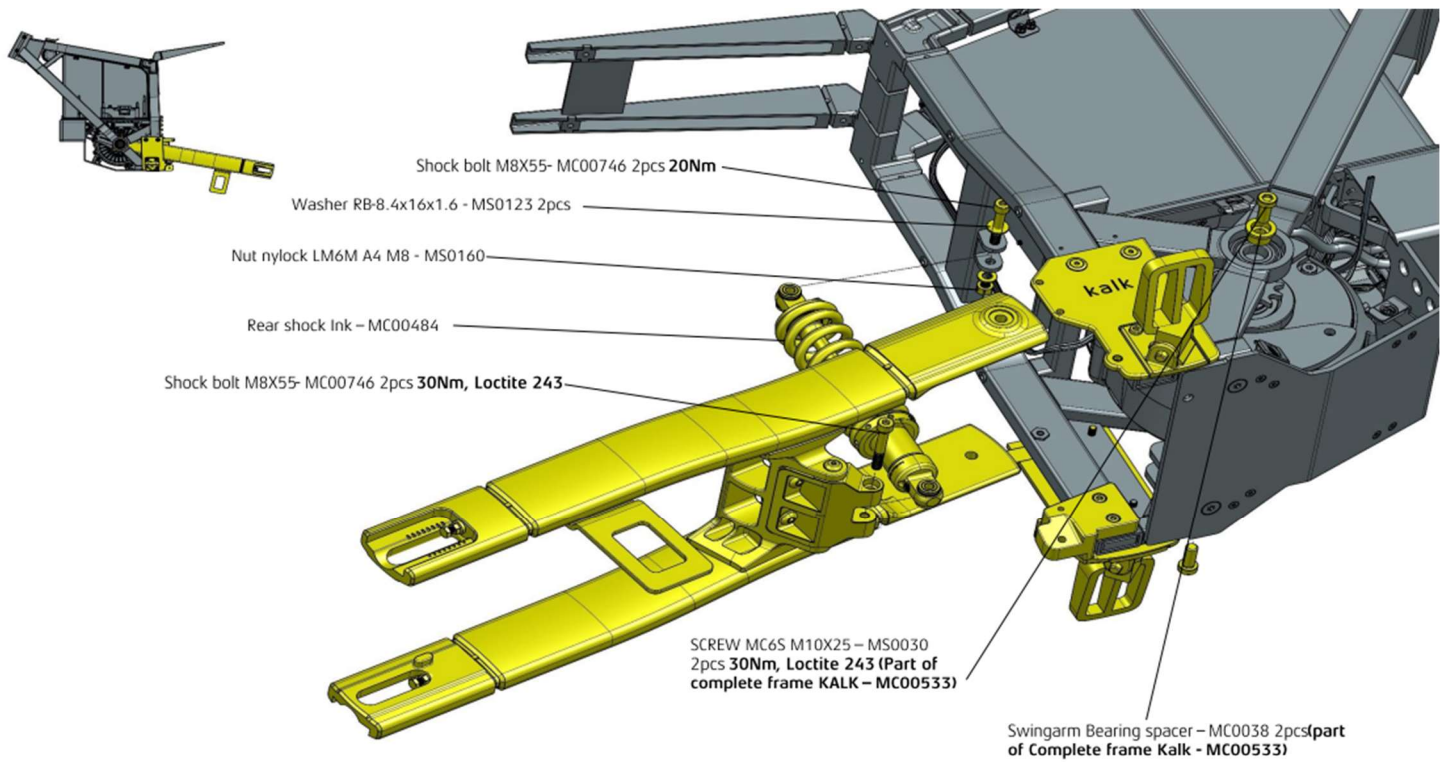
I highly recommend taking photos before every step of disassembly. You never know when they will come in handy during reassembly! A great example: Take careful note of where the wiring harness is routed around the motor!

Remove the following components:

- 1. Battery**
- 2. Motor Covers**
- 3. Rear Wheel**

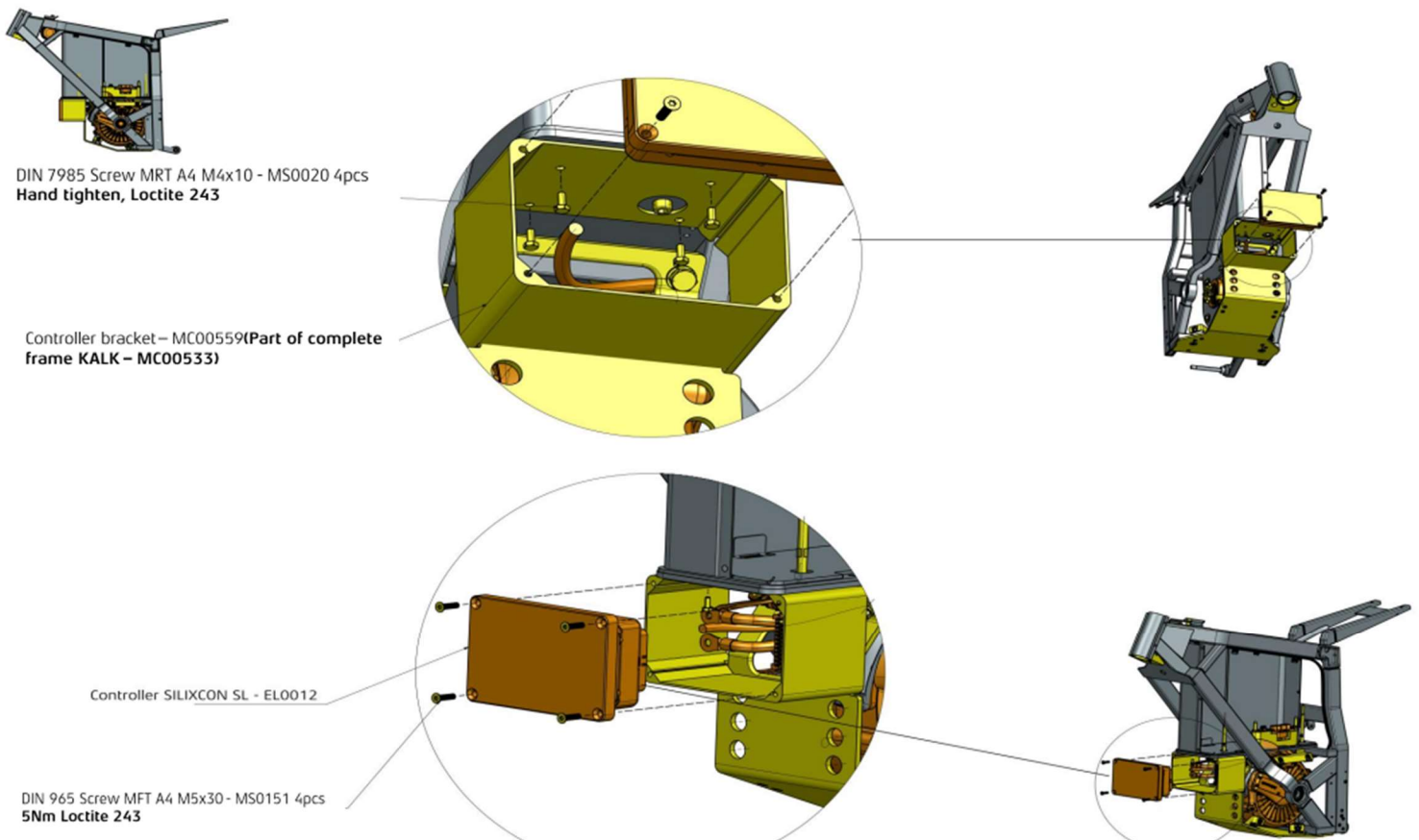


4. Swingarm & Rear Shock

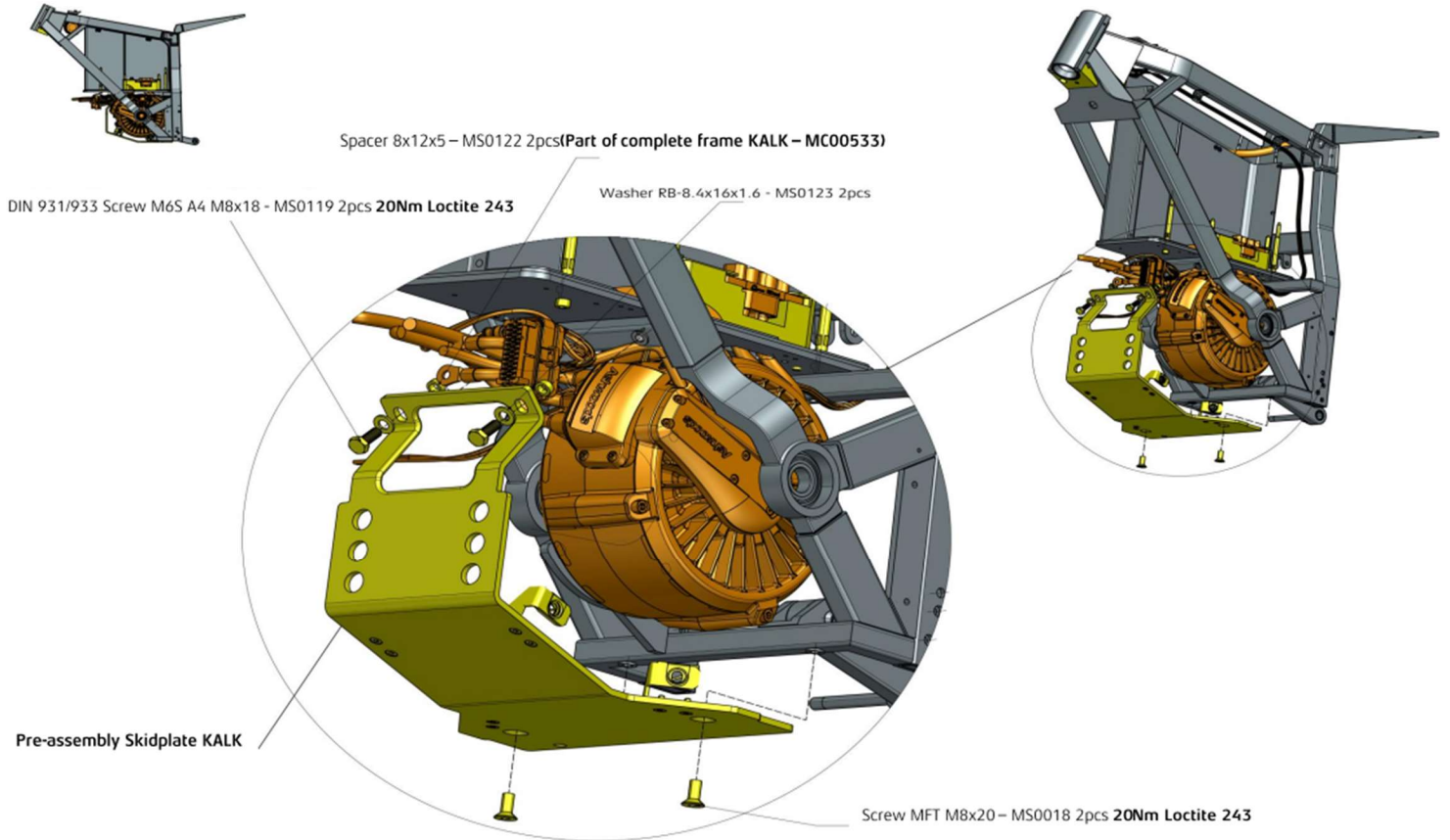


4A. TIP: At this point, it can be favorable to **flip the bike upside down**, so the bike's frame and handlebars are on the ground, and you have clear visibility to the underside of the bike.

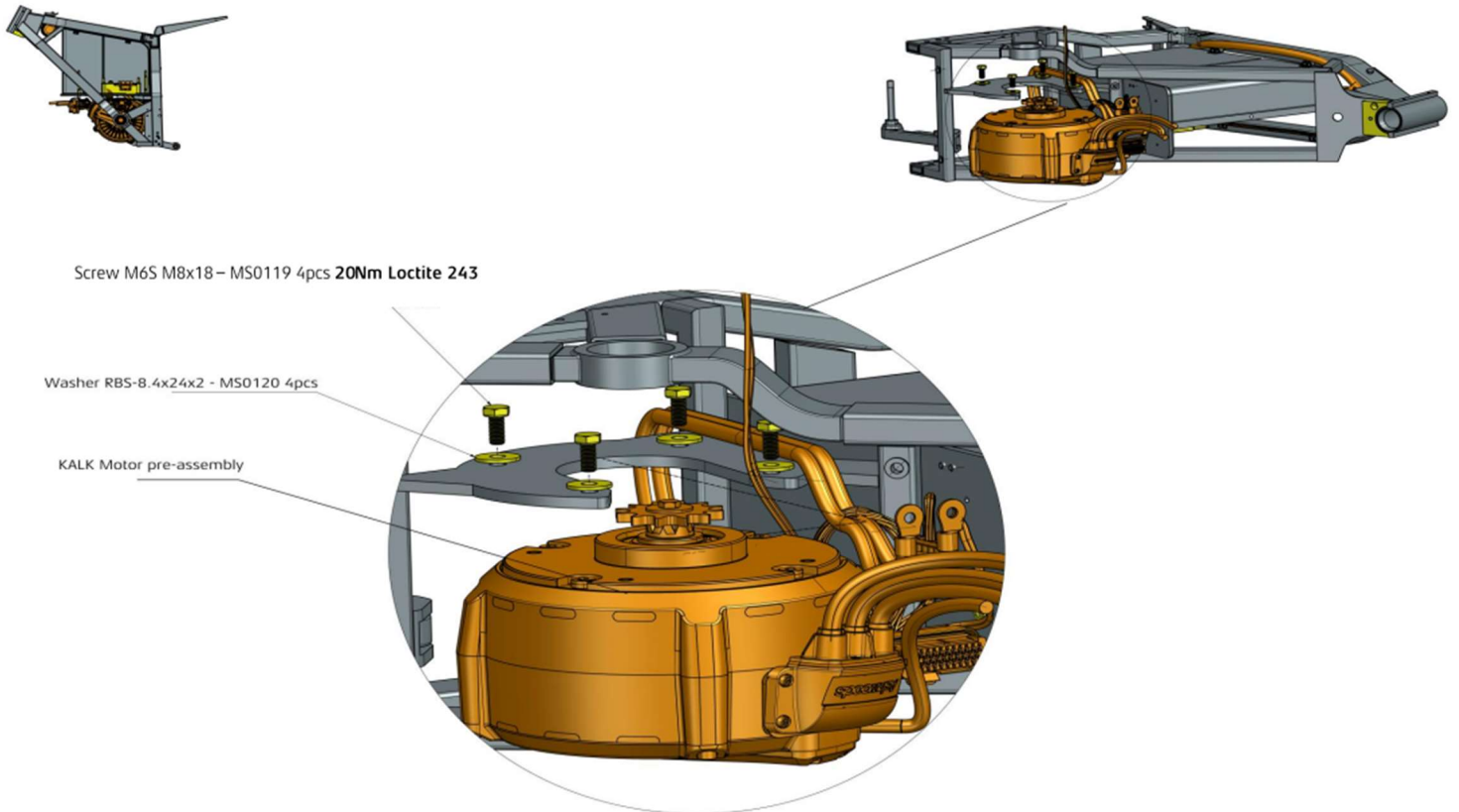
5. Controller & Controller Box



6. Undertray



7. Motor



7A. TIP: The motor fitment is very tight and can be hard to get out (and new one in). Rotating the motor forward, and then angling it away from the sprocket/mounting side of the frame will be the trick for both removal and re-install.

8. Reverse the steps above for the installation of the new motor.

Re-installing the Controller:



Step 1

- Before you start connecting the controller make sure that all connectors look fine, and no cables are damaged.



Step 2

- Connect the encoder connector with the main harness, be sure that you have the connector in the right position. You should here a click when the contact is fully attached.



Step 3

- Connect the multi contact to the controller, be sure that you have the contact in the right position. You should here a click when the contact is fully attached.



Step 4

- The correct connection for the Kalk controller are; **V-A U-B W-C**. Start to attach the **V-A**, be sure that rear side of the cable is pointing at the multi connector. Fasten the phase cable screw with **10Nm** Use a Allen 5.



Step 5

- Do the same procedure with **U-B**.



Step 6

- Do the same procedure with **W-C**.



Step 7

Attach the MINUS "black" Battery cable.

- Be sure to attach the minus fuse connector over the battery cable.



Step 8

Attach the PLUS red Battery cable.

- Be sure to attach the PLUS fuse connector over the battery cable.



Step 9

- Push in the controller and attach the Screws

After the bike is fully reassembled (everything but the seat and motor covers), a syncing procedure called an Identification Run needs to be performed to sync the controller with the new motor. See steps below.

1. Place the bike on a bike stand, so the rear wheel can spin freely
2. Remove the right side engine cover. This is done by turning the 4 flat head screws 90-degrees counterclockwise.
3. Tucked in front of the motor, behind the controller box, you will see a few wires. We are looking for a black wire that ends with a small white JST connection that is looped back to itself. It may be labeled "ID Run" or "S3".
4. Power the bike all the way on, do not engage the throttle. You should hear the standard 'idle' beep every ~10 seconds.
5. Unplug the small white JST connection described above. Wait 5 seconds.
6. Plug the small white JST connection back in.
7. Exactly 10 seconds after plugging back in, you will hear a different sounding beep from the bike (it sounds flatter than the 'idle' beep). Unplug it again immediately.
8. At this point the rear wheel should begin to spin. It will spin in 3 intervals. The bike will then restart and briefly show a "no connection" message on the display screen.
9. ID run complete! Replace the small white JST, restart the bike, and test for functionality (throttle response).