SERVICE DOCUMENT: G2 SERVO

VERSION 1.0

Service Document for the G2 Gear Servo

CONTENTS

OVERVIEW

This service document details the service of the G2 Servo. If you have any questions, or require any further assistance, please contact techsupport@gocycle.com.

PARTS LIST

The following parts are referenced within this document. *Note: When ordering replacement parts from KKL, please quote the product code and quantity required.*

Part Code	Part Description	Quantity
11	M5 x 24 Magform	12
2061	Crank Arm Right-Hand	1
2175	M4 x 24 dowel Pin SS A4	8
2225	Spring WS Carbon Steel	2
2283	20mm Crank Arm Bolts	1
KKL-2081-2632-02	Servo	1
KKL-2082-2275-00	Servo Horn	1

TOOL LIST

The following tools are required to successfully service the G2 Servo.

Part Code	Tool Description
	Allen Key, 2.5mm
	T10 bit
	T15 bit
	T25 Extension Piece
	Philips screwdriver
	Knife
	Pliers
	Crank-puller (square taper type)
	Chain splitter
	Torque wrench (8mm Hex Bit)
	Heat gun

BEST PRACTICE GUIDELINES

Before conducting any service or maintenance on the Gocycle ensure the following points are adhered to:

1. The battery must be in 'Sleep Mode' (switched off).
2. Ensure the Gocycle is appropriately secured to prevent injury and damage.
3. If the Gocycle has been ridden continuously for more than 5 minutes, allow a minimum of 30 minutes before performing any maintenance or service activity on the electrical system. Examples include removing, installing connecting or disconnecting the battery.
4. If maintenance is being performed within 30 minutes of usage, components such as the battery, motor and gearbox may be hot. Treat these components with care and allow time to cool to a safe handling temperature before conducting any maintenance.
5. Read and understand the following service document fully.
6. Only use the tools specified to complete assembly instructions and ensure torque requirements are met and checked.
7. Follow **all** instruction steps accurately and in the correct order, taking note of any cautions and/or warnings.
8. If in doubt, or you require further explanation on a procedure, please contact your authorised Gocycle Service Centre for assistance or our Gocycle Technical Support Executives.

ELECTRICAL SYSTEM BEST PRACTICE GUIDELINES

1. It is not recommended to disconnect, connect, remove or install the battery in environments above 40°C.

2. If you discover damage to any of the electrical system components other than light cosmetic, such as exposed or corroded electrical connections or damaged wiring contact your authorised Gocycle Service centre immediately and do not attempt to operate the Gocycle.

3. Do not short circuit the battery terminals.

4. Power terminals must only be connected or disconnected when the battery is in 'Sleep Mode' (switched off).

5. Use extreme care when handling the battery to prevent any physical damage. Immediately contact your authorised Gocycle Service centre if there is physical damage.

6. Do not puncture or subject the battery to strong impacts.

7. Do not attempt to disassemble or modify the battery.

8. Do not expose the battery to excess water or moisture.

9. Ensure battery terminals are connected securely and correctly; positive to positive (red-to-red), negative to negative (black-to-black) before switching on your Gocycle.

10. The battery has been designed specifically for use with the generation-two (G2) Gocycle. Do not use the battery with any other product.

11. The battery is intended to remain within the Gocycle frame at all times and should be removed only by a Gocycle-approved service centre or with the assistance and approval of a Gocycle Technical Support Executive.

12. Do not expose the battery to fire.

13. Only use the specified Gocycle G2 charger.

14. Do not leave the battery unattended whilst charging.

15. Only use, charge or store the battery in an environment with ambient temperatures between 0°C and 40°C (32°F and 104°F) and a humidity of 45% to 85% RH.

16. If you wish to remove the Gocycle Light Kit, the light harness on Gocycles FN <240000 must also be removed.

1. Right-Hand Crank Arm Removal

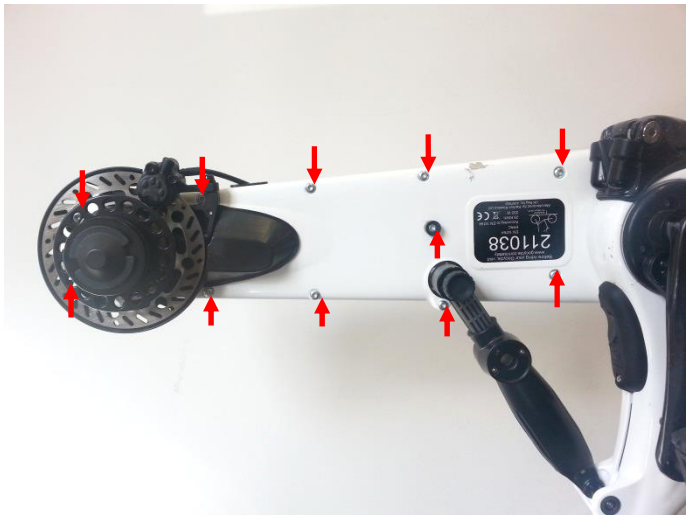
1.1. Invert the G2 and locate in a work stand. Remove both PitStopWheels®.

1.2. Use a wrench with an 8mm Hex bit to undo the Right-Hand Crank Arm Bolt (2283).

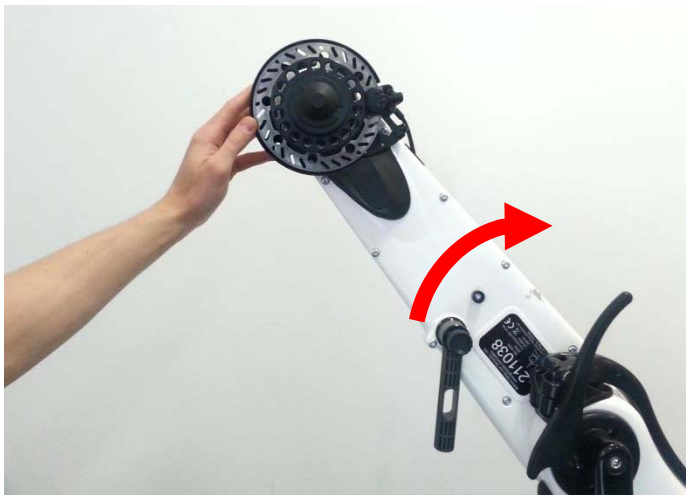
1.3. Use a square taper crank puller to remove the Right-Hand Crank Arm (2061).

1.4. Take care when removing the crank arm and ensure to keep all 8 dowel pins (2175) located as well as all 4 Carbon Steel Wave Springs (2225).

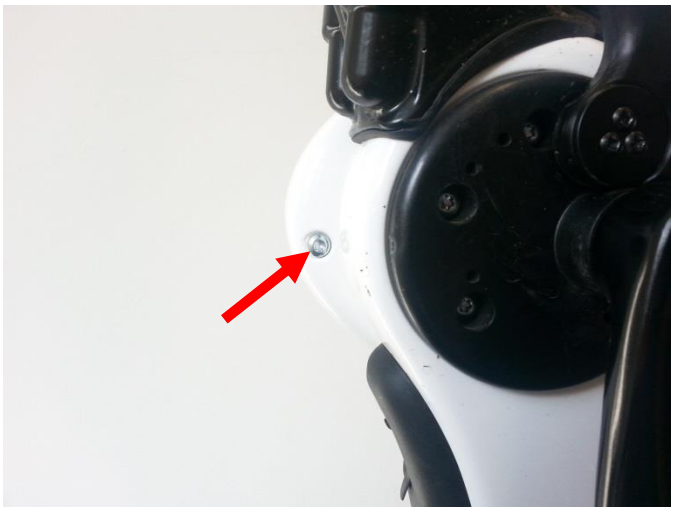
2. CLEANDRIVE® COVER REMOVAL



2.1. Using a T25 Torx Bit, unscrew the eleven Magform Bolts (11) as shown.

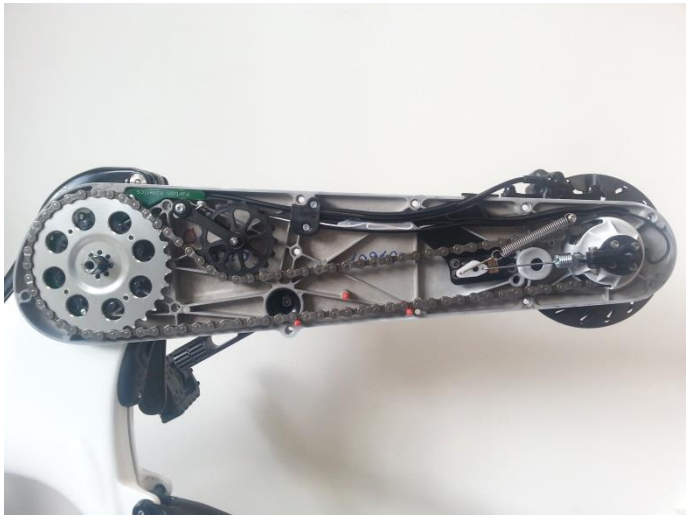


2.2. Rotate the Cleandrive® upwards, as shown



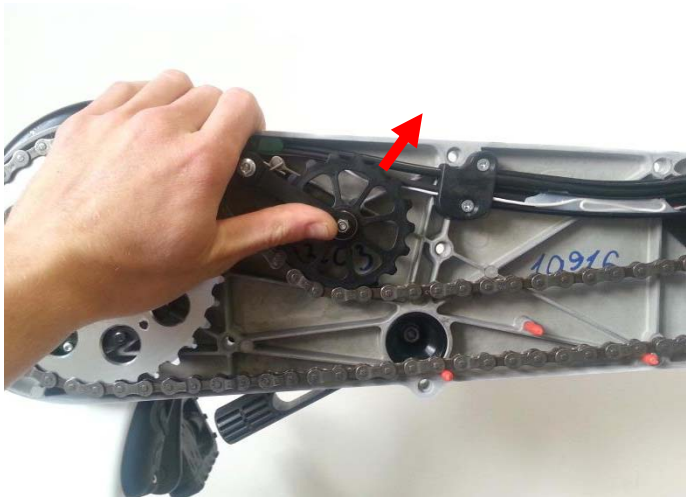
2.3. Unscrew and remove the remaining Magform Bolt (11).

CHECK! There are a total of 12 Magform Bolts to unscrew before the Cleandrive® cover can be removed.

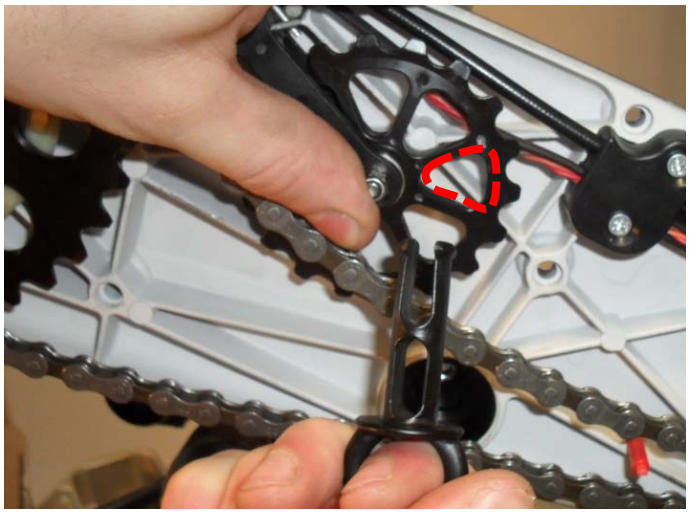


2.4. The Cleandrive® Cover can now be removed ready for internal inspection.

3. CHAIN REMOVAL

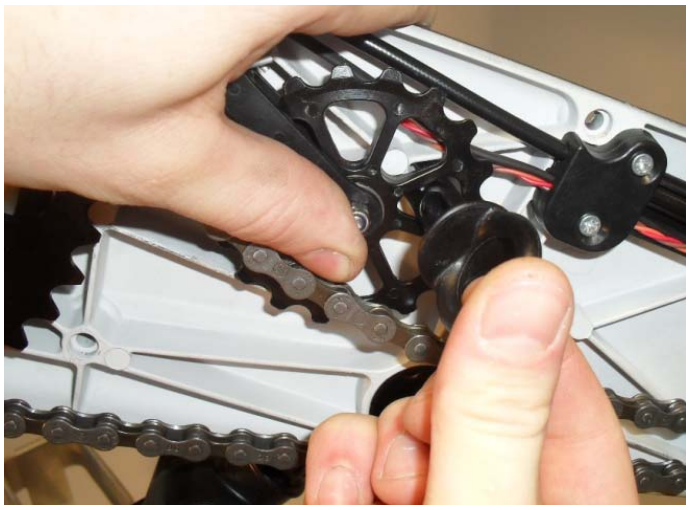


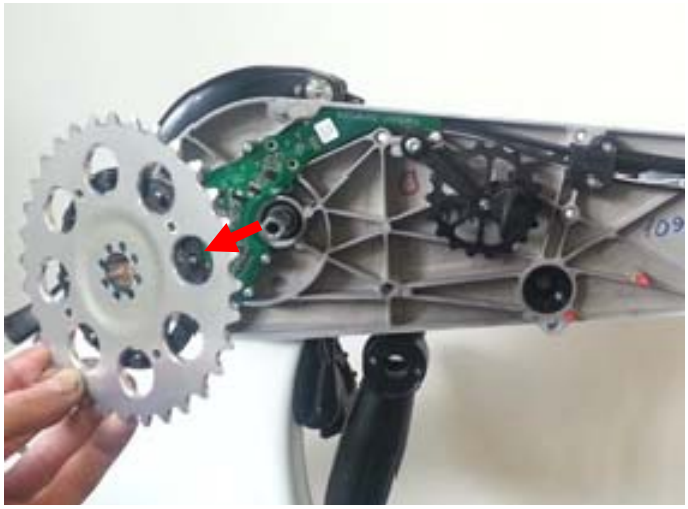
3.1. Use your thumb to apply upward pressure on the Chain Tensioner as shown.



3.2. Release the Chain from the Chain Tensioner and use the LockShock® Pin to secure the Chain Tensioner as demonstrated.

Note: You do not need to completely remove the chain. Derailing it from the Chain Tensioner and Chainring will be sufficient for access to the servo.

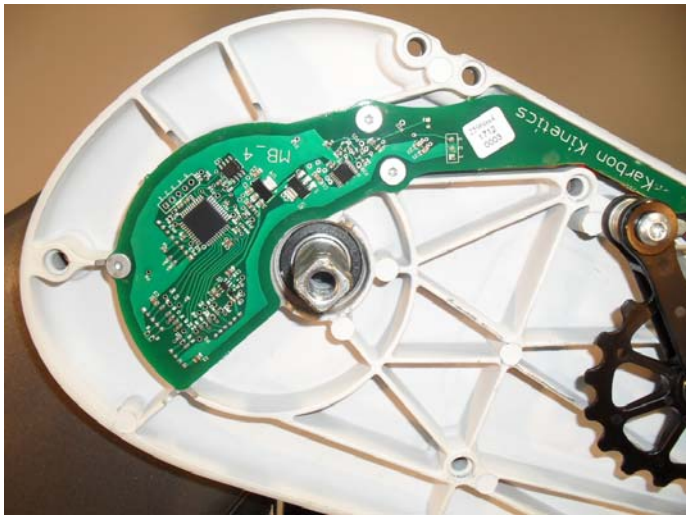




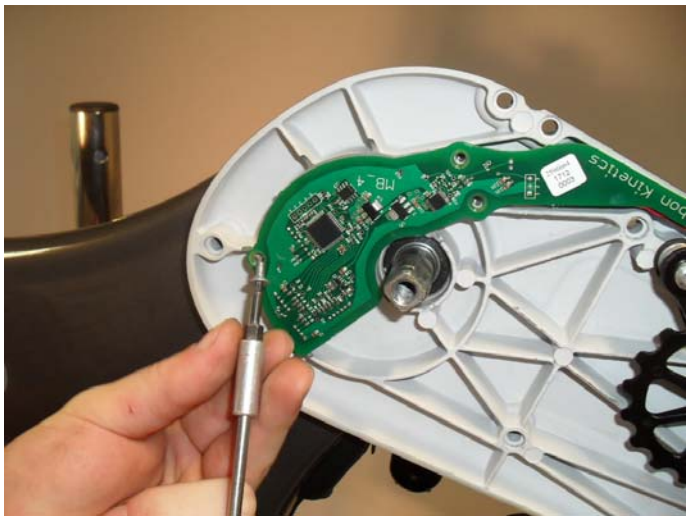
3.3. Allow the Chain to hang free and remove the Chainring from the Bottom Bracket Spindle as shown.

4. SERVO REMOVAL

Note: Before commencing ensure the Gocycle battery is in '*Sleep Mode'* or disconnected and removed



4.1. Once the Chainring has been removed, the Main Junction Board (JB) will be v as shown.



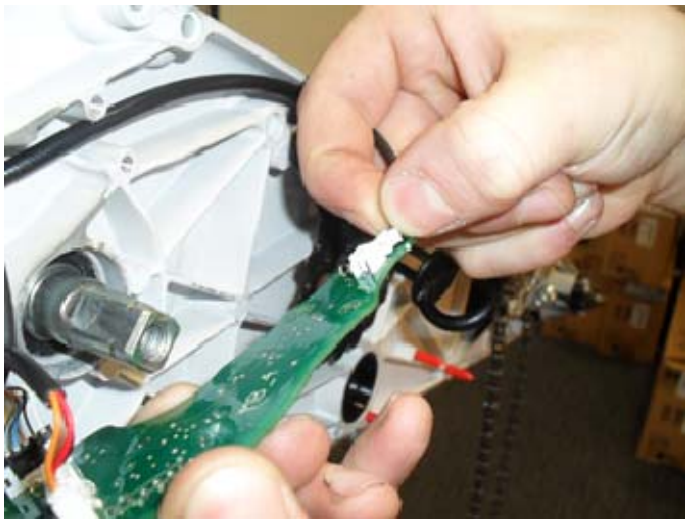
4.2. Remove the Junction Board by undoing the retaining bolts.

Depending on Gocycle Frame Number there may be 3 or 4 securing bolts.

Use either a 2.5mm Allen key or a T10 to undo the securing bolts.

Note: Please note the location of the securing bolts on your model of Gocycle for reinstallation later on.

4.3. Remove the Main Junction Board PCB taking care not to touch the components on the board, as shown.



4.4. Hold the edge of the Main Junction Board PCB as shown, and remove the 2 pin white connector. This is the Rear Sensor.

4.5. Remove the 3 pin connector as shown. This is the Servo Cable.

4.6. Allow the chain to rest as shown so that both balance springs are free and accessible.

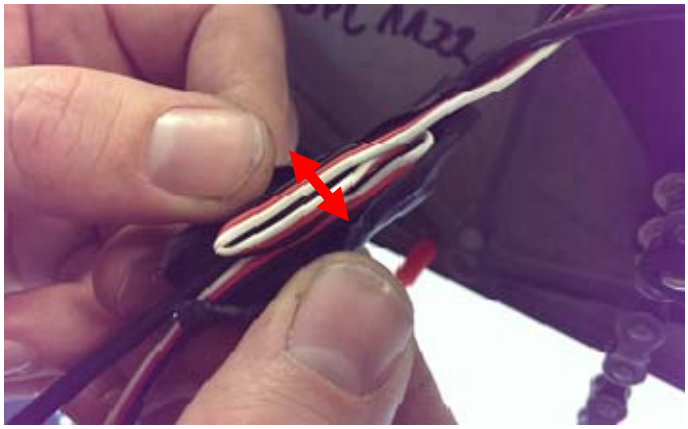
4.7. Remove the Cable Guide Upper by unscrewing the two retaining bolts using a Torx T15

Note: Depending on Gocycle Frame Number these may also be Philips-head screwdriver.

4.8. With the Cable Guide Upper removed.

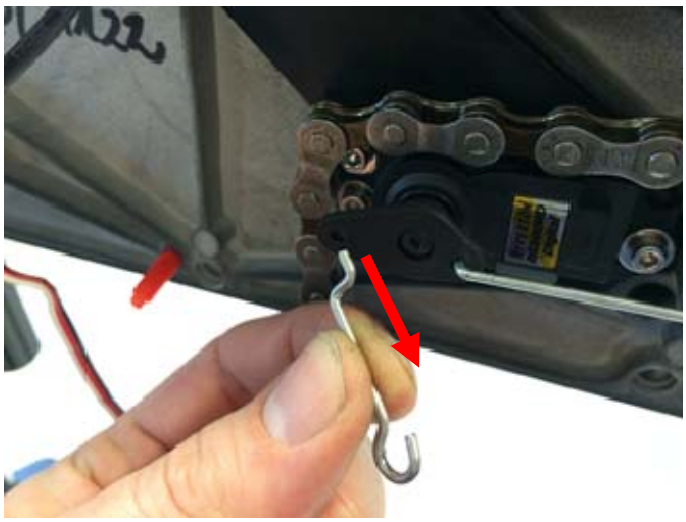
4.9. Pull the wires out of the Cable Guide Lower to reveal the heat-shrink-wrapped section. These wires are the Servo Controller Cable (with the flat black connector) and the Rear Sensor Cable (with the white connector).

4.10. Use a sharp blade to very carefully cut off the shrink-wrap, taking care not to damage the wires underneath.



4.11. When the shrink wrap has been removed, there may be excess wiring coiled up underneath.

4.12. Unhook the E Shift Balance Spring from its mount on the Cleandrive.

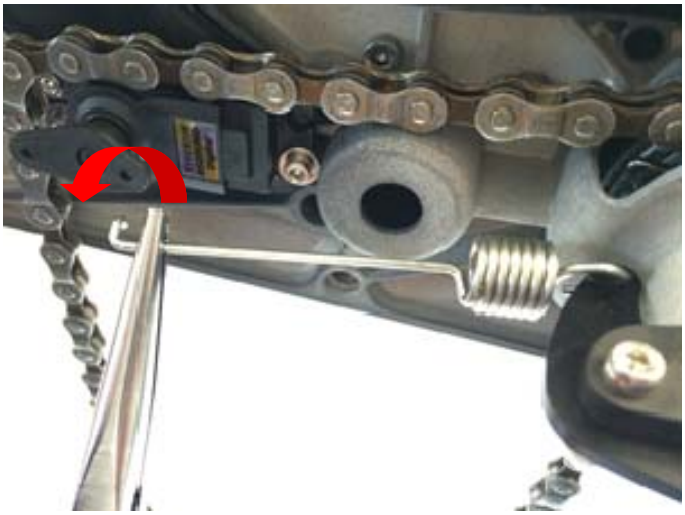


4.13. Remove the E-Shift Balance Spring from the servo by unhooking from the E Shift Spring Balance Link, then remove the E-Shift Spring Balance Link from the servo.

4.14. With the E-Shift Balance Spring removed, the retaining bolt can also be removed.

4.15. Use a 2.5mm Allen key and take care to keep the E-Shift Spring Spacer with the bolt.

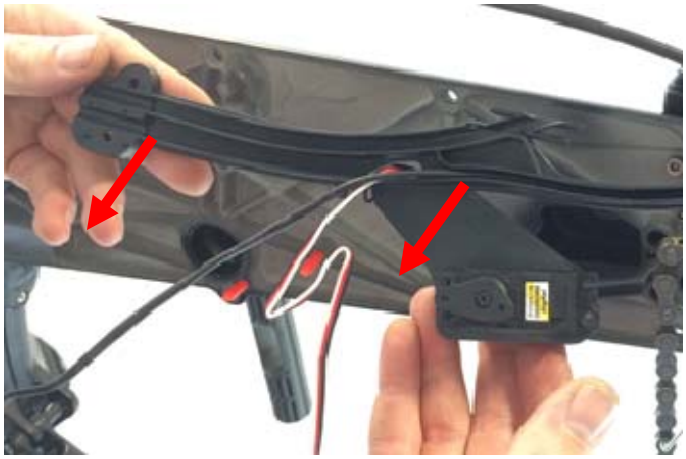
4.16. Remove the E-Shift Spring.



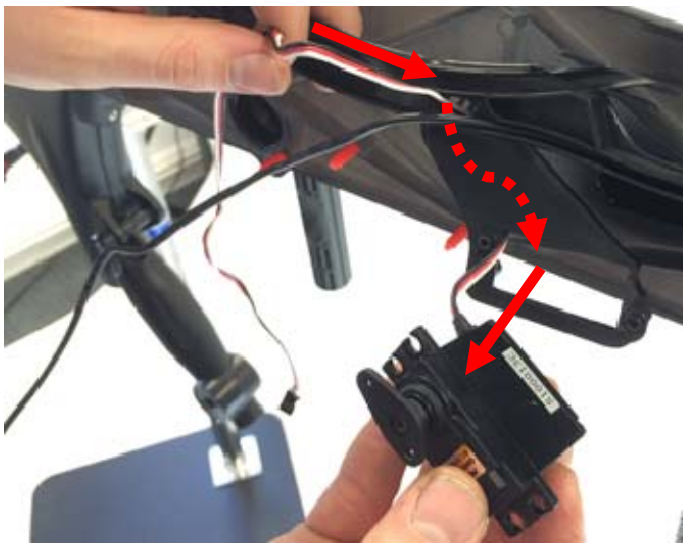
4.17. Unhook the Servo end first. Using pliers, rotate the E-Shift Spring towards you so that the hooked end becomes free of the Servo Horn, then pull away from the Servo.

4.18. The E-Shift Spring can be left hooked at the other end.

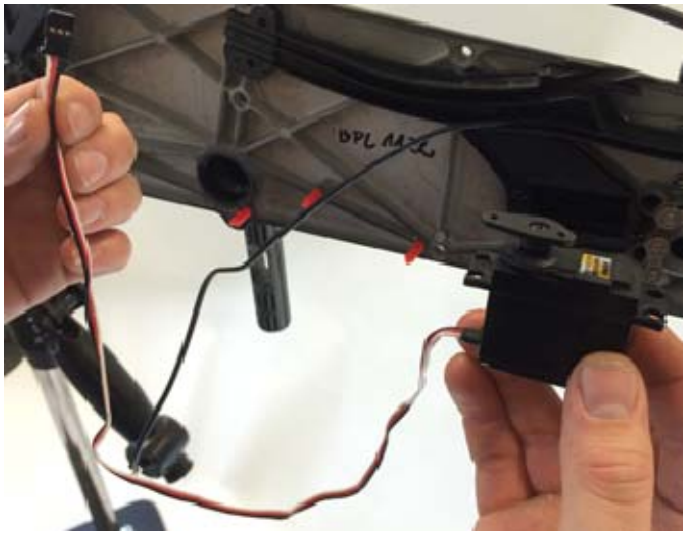
4.19. Remove the three M3 x 25 Caphead Servo retaining bolts using a 2.5mm Allen Key. Make sure to keep the washers for reinstallation.



4.20. Remove the Cable Guide Lower along with the Servo from the Cleandrive by pulling it away.

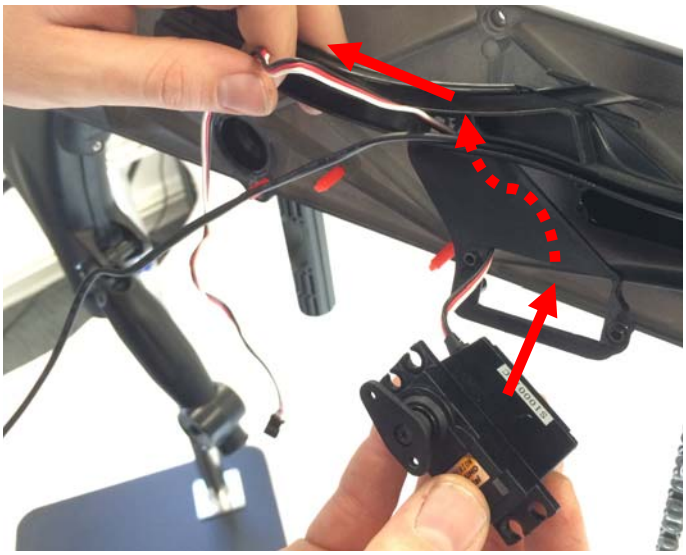


4.21. Remove the Servo from the Cable Guide Lower. This is done by pulling the Servo out of the Cable Guide Lower and threading the cable out.



4.22. Completely remove the Servo as shown.

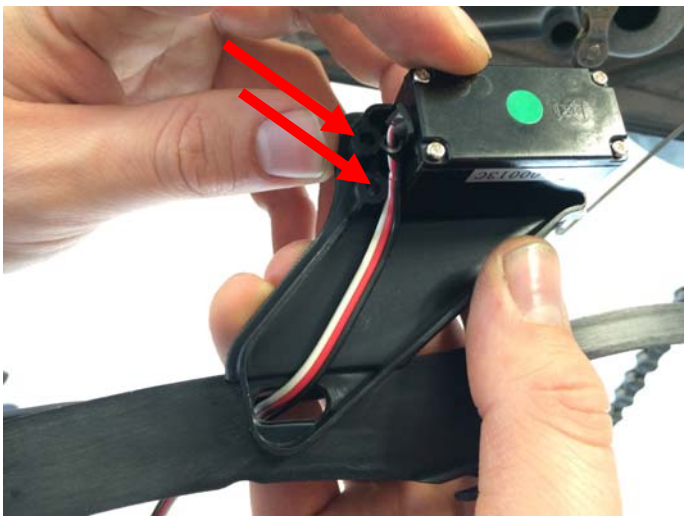
5. SERVO INSTALLATION



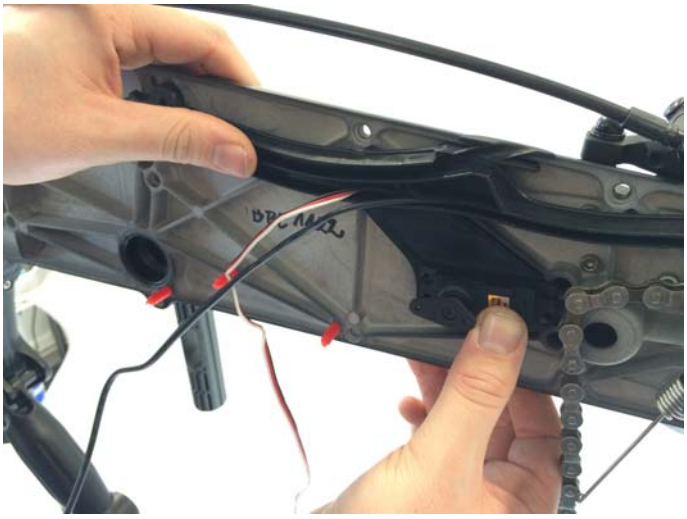
5.1. To fit the new Servo, first loop the Servo Controller Cable through the large lower hole in the Cable Guide Lower, then back up through the smaller upper hole. Whilst pulling the wire through, fit the servo back into its mounting hole.

5.2. Front view of the Servo correctly mounted into the Cable Guide Lower.

NOTE: The Servo housing should be flush with the Cable Guide Lower.

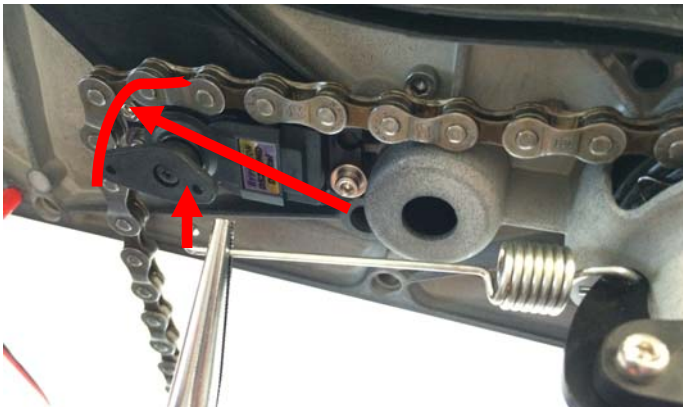


5.3. Rear view of the Servo correctly mounted into the Cable Guide Lower. Take care to ensure the Servo Controller Cable clears both of the bolt holes.



5.4. Reattach the Cable Guide Lower with Servo to the Cleandrive.

5.5. Secure the Servo in position with the three M3 x 25 Caphead bolts, ensuring the washers are present.

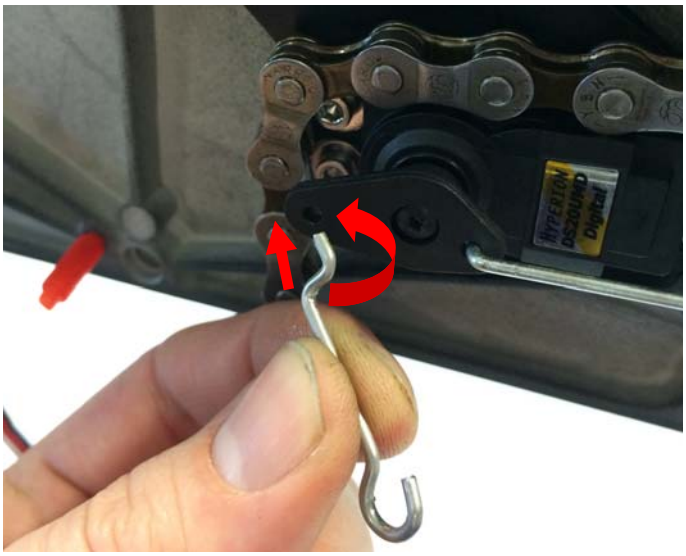


5.6. The Chain must now be looped back over the Servo before the Servo springs can be reinstalled.

Refit the E-Shift Spring.

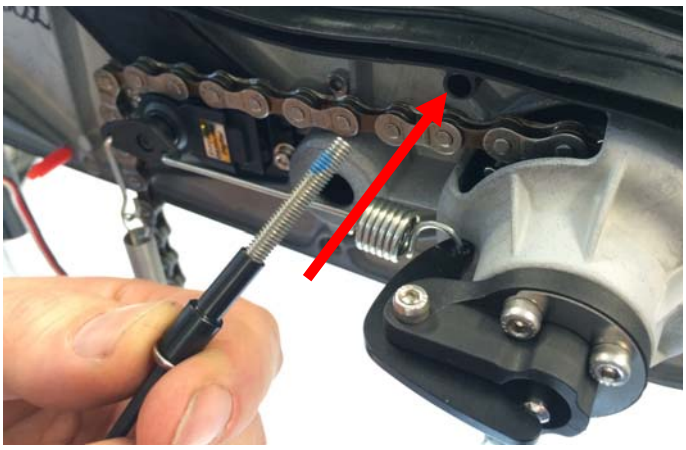
5.7. It helps to rotate the spring away from the Servo to line up the end of it with the hole in the Servo Horn.

5.8. This shows the E-Shift Spring correctly installed.



5.9. Locate the E-Shift Balance Spring Link into the Servo Horn as shown.

5.10. Connect the end of the E-Shift Balance Spring to the E-Shift Balance Spring Link as shown.

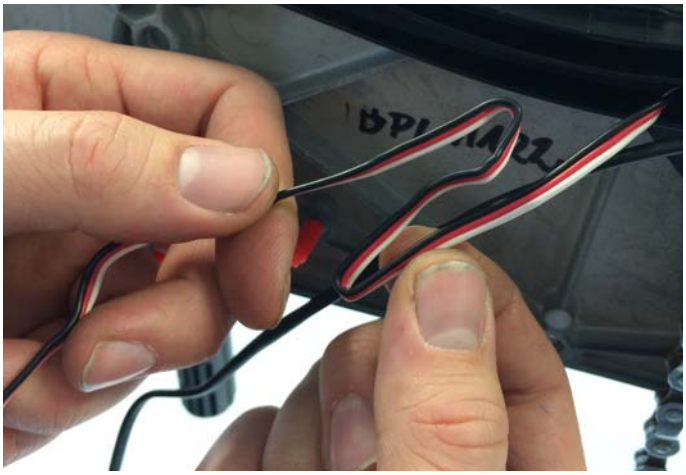


5.11. Install the E-Shift Balance Spring retaining bolt along with E-Shift Spring Spacer using a 2.5mm Allen Key.

5.12. Hook the hooped end of the E-Shift Balance Spring on to the bolt as shown.

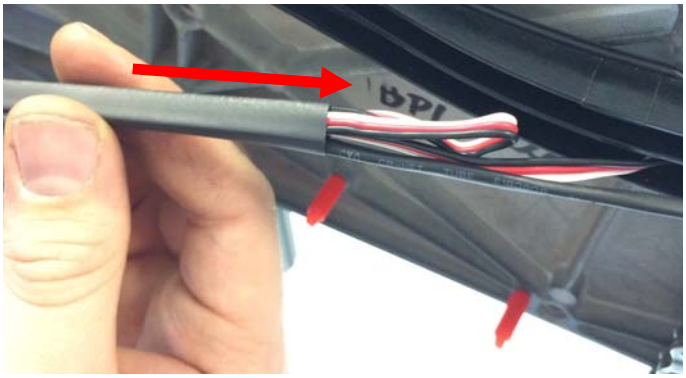
This shows both E-Shift Springs installed correctly.

5.13. Replace the Servo cable shrink-wrap. Cut a 50mm length of 8mm shrink-wrap.



5.14. Check the length of the new Servo Controller Cable by running it up through the Cable Guide Lower so that the connector block is near its mounting location on the Main Junction Board.

Fold over any excess cable to achieve this length.



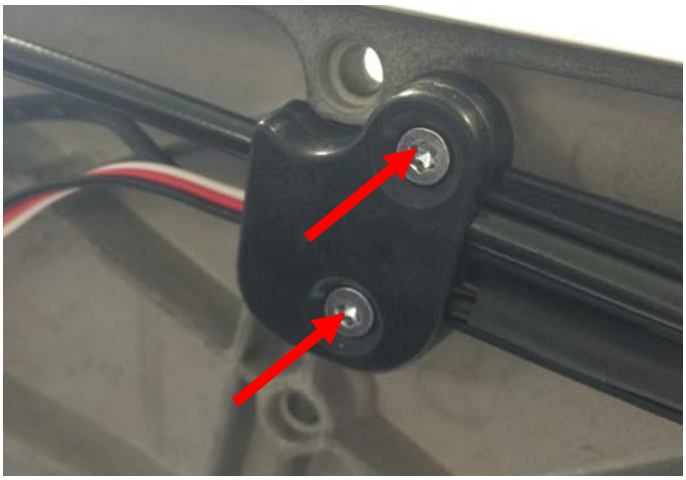
5.15. Cover both the Servo Cable and Rear Sensor Cable with the shrink-wrap, ensuring all of the folded wiring is covered.

5.16. Insert the cable in to the Cable Guide Lower and check that the shrink-wrap does not extend under the Cable Guide Upper as shown.

5.17. Use a Heat Gun to tighten the shrink-wrap around the Servo Cable and Rear Sensor Cable.

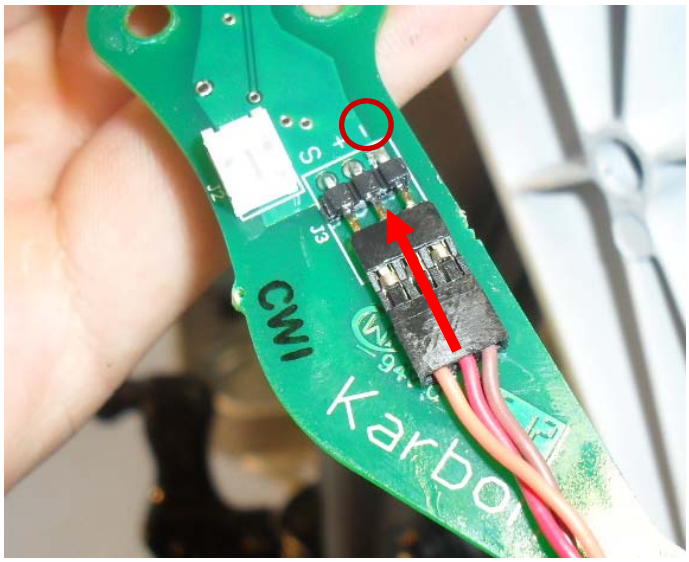
Caution! Do not use excessive heat as this may damage the cables.

5.18. Insert the Rear Brake Hose and the combination of Servo and Rear Sensor Cable in to the Cable Guide Lower channels and mount the Cable Guide Upper to secure them in place by hand as shown.



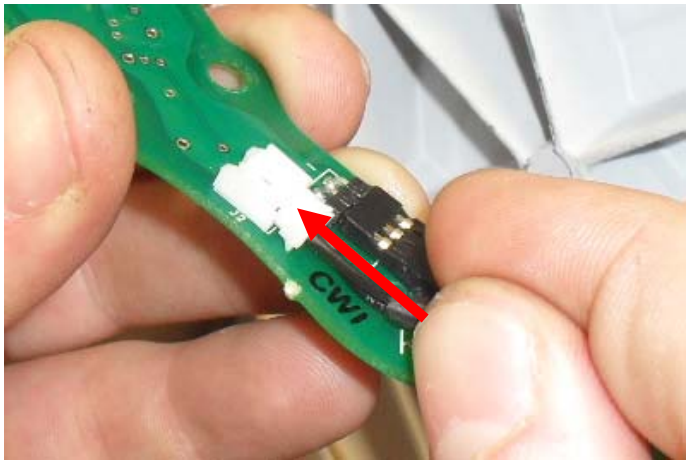
5.19. Install both Cable Guide Upper bolts using a Torx T15 or Philips screwdriver depending on Gocycle Frame Number.

6. MAIN PCB REFIT

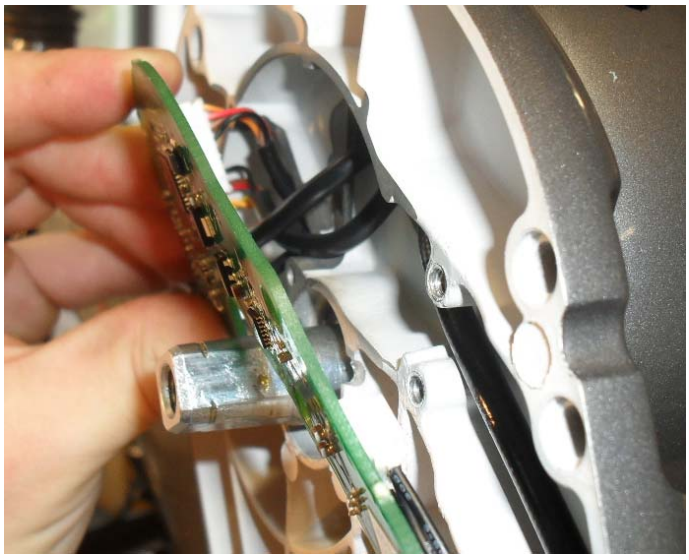


6.1. Reconnect the Servo Cable. Ensure that the brown cable aligns with the negative pin.

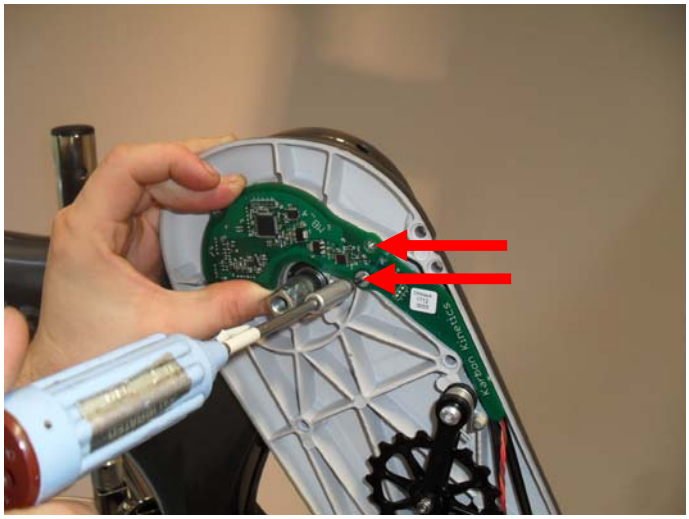
Note: On some models the negative cable will be black.



6.2. Connect the Rear Sensor Cable and ensure it is fully closed.

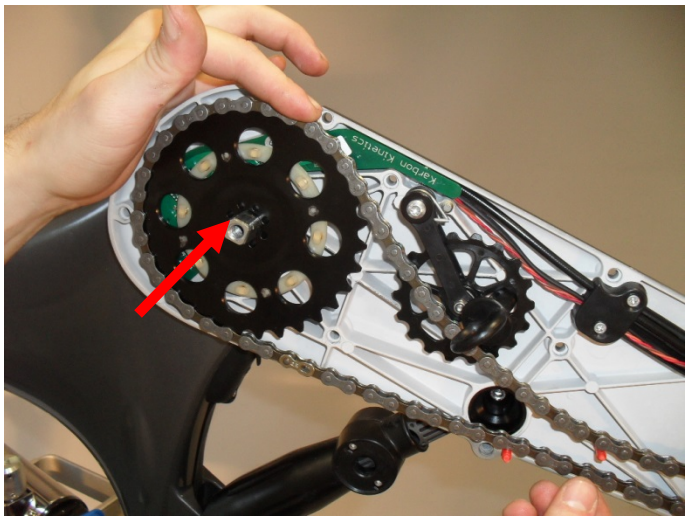


6.3. Begin to close the Main Junction Board PCB against the Cleandrive®. This photo demonstrates the correct cable routing. Ensure that no cables get pinched or trapped.

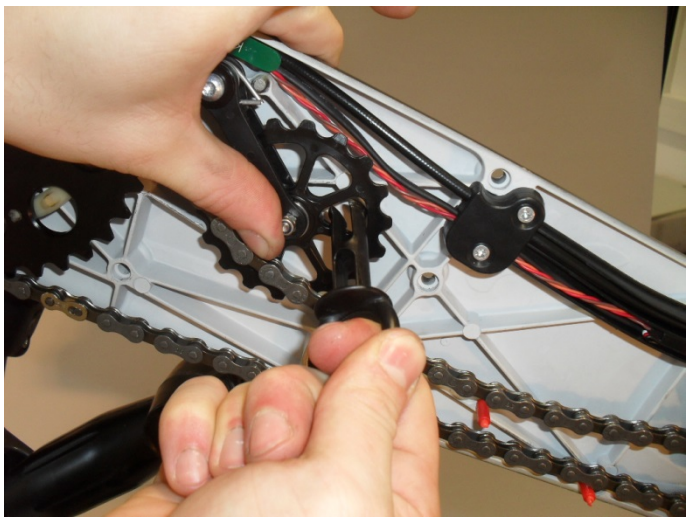


6.4. Align the Main Junction Board PCB Board flush against the Cleandrive and reinstall the securing screws as demonstrated.

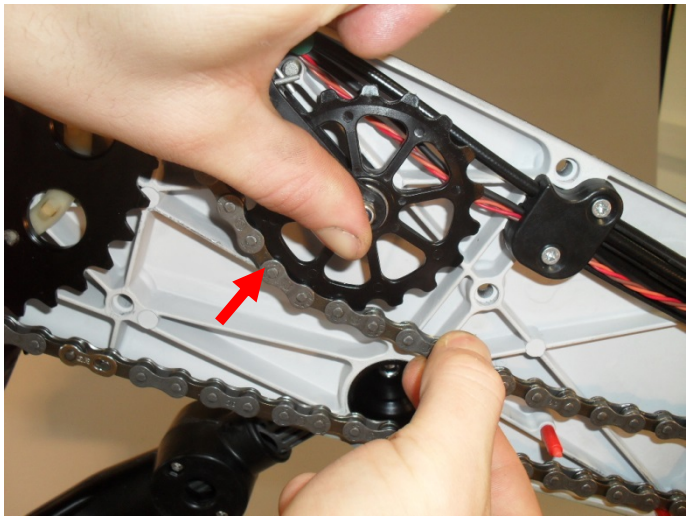
7. CHAIN INSTALLATION



7.1. Re-install the Chainring on to the Bottom Bracket Spindle and locate the Chain on to the Chainring as shown.

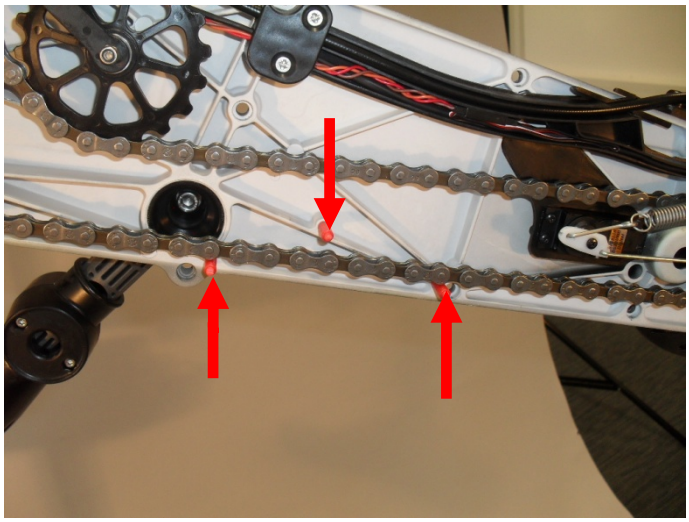


7.2. Apply light upward pressure to the Chain Tensioner in order to remove the Lockshock® pin.

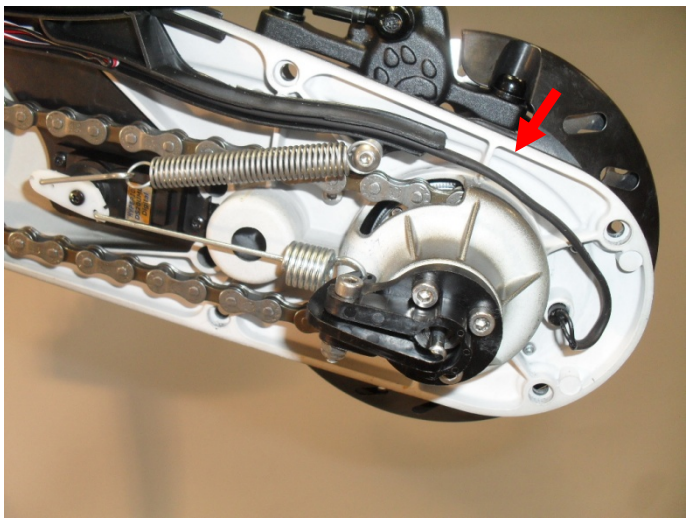


7.3. Continue to apply upward pressure to the Chain Tensioner in order to refit the chain to the Chain Tensioner sprocket as shown.

8. CLEANDRIVE® INSPECTION



8.1. Ensure the three Chain Pins are installed correctly and that the chain runs through them as shown.



8.2. Check the Servo Balance Springs are installed correctly as shown.

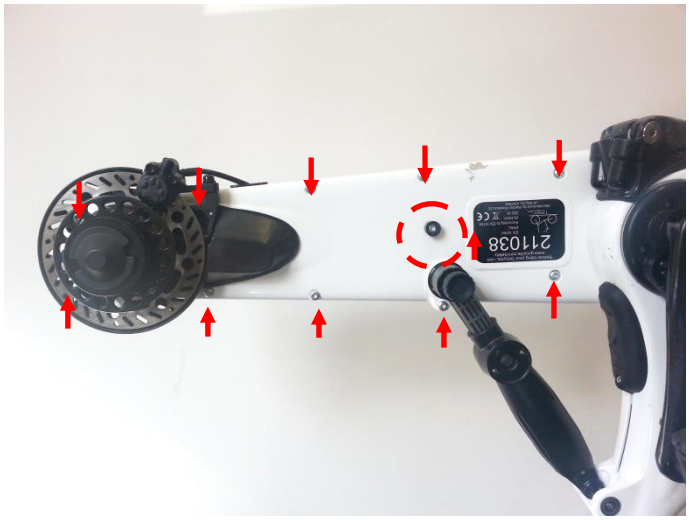
Be careful to ensure the Rear Sensor cable will not get trapped when the Cleandrive® cover is reattached.

8.3. Check that the Chain is fitted to the Chainring and the Chain Tensioner sprocket correctly as shown.

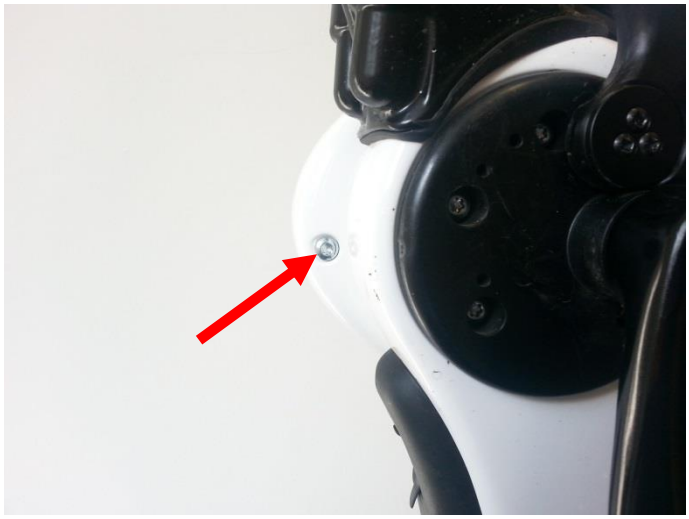
9. CLEANDRIVE® COVER INSTALLATION

9.1. Align the Cleandrive® cover ready for reassembly.

9.2. Take care to line up the brake hose seal correctly, as shown.



9.3. Install the 11 Magform Bolts back into the Cleandrive® noting the position of the fender guide bracket.



9.4. Rotate the Cleandrive® in order to install the final Magform Bolt.

10. Crank Arm Installation

10.1. Before assembling the Right-Hand Crank Arm, ensure that the Carbon Wave Springs (2225) are installed as well as the 8 Dowel Pins (2175), as shown.

Note: Your Gocycle may have 1-3 Carbon Wave Springs.

10.2. Hold the Left-Hand Crank Arm vertical as shown and have the Right-Hand Crank Arm ready to install.

10.3. Align the Right-Hand Crank Arm to the Bottom Bracket spindle and then slowly rotate to help locate the Dowel Pins in the Chainring.

Once the Dowel Pins have aligned with the Chainring correctly, push the Right-Hand Crank Arm in to position.

10.4. Now install the Right-Hand Crank Arm Bolt and tighten with a wrench to a 35-40Nm torque.

IMPORTANT NOTE: YOU MUST CARRY OUT THE ABOVE REMOVAL AND REPLACEMENT STEPS IN ORDER. FAILING TO DO SO MAY RESULT IN DAMAGE TO THE GOCYCLE.

If you have any further queries or comments, please contact Gocycle Technical Support:

techsupport@gocycle.com