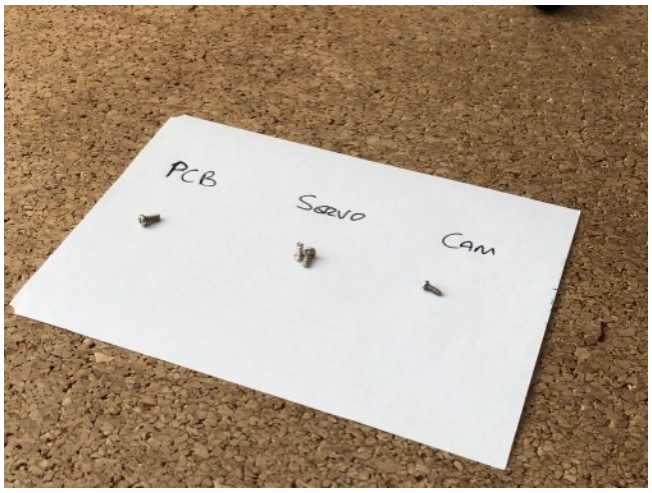
Replacing your Line-us lift servo

1. You will need the following items:

- Replacement servo Emax ES08A
- Philips PH0 screwdriver
- Pry tool to remove the back (the metal ones work well)

The repair should take 15-30 minutes and is fairly straightforward. If you have problems get in touch at help@line-us.com - if you get completely stuck you can always send your Line-us to us and we'll finish the repair for you so we encourage you to give it a try!

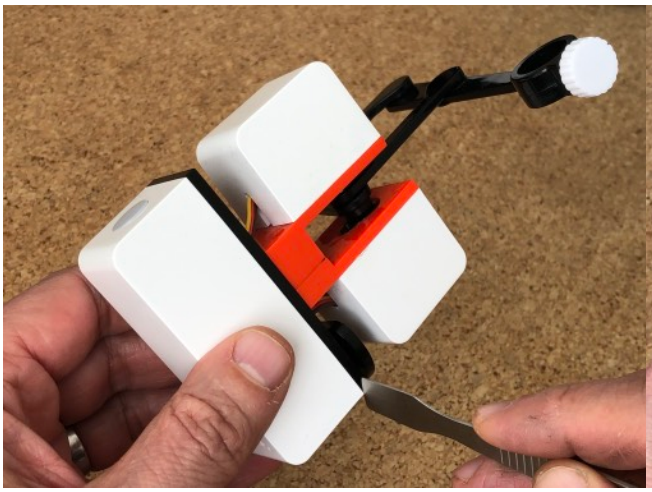


2. Make yourself some space, and most importantly find a safe place for the small parts. There are three different types of screw that all look quite similar and it's important that they go back in the right places.

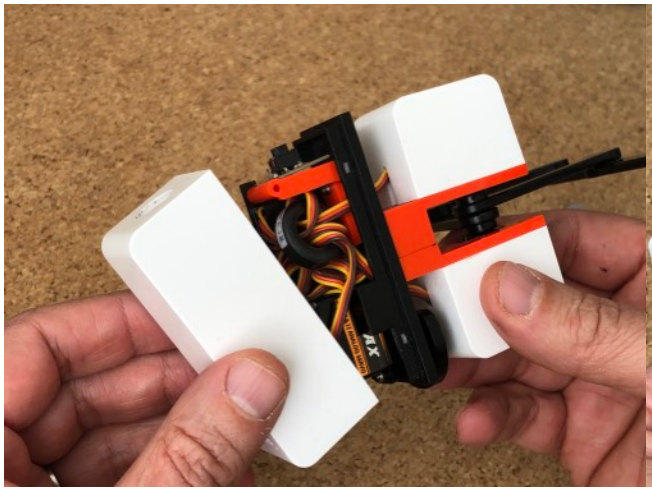
3. Unscrew the two metal caps and remove the springs.

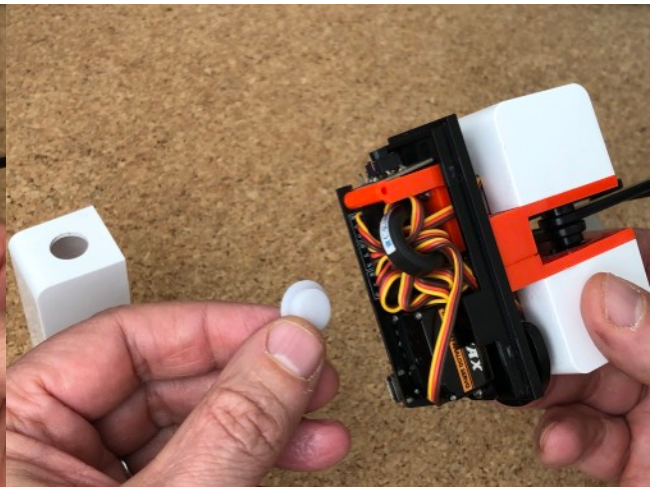
4. Remove the Line-us body from the base and put the base somewhere safe as you won't be needing it until you re-assemble your Line-us.

5. You now need to remove the back from your Line-us. You'll need a pry tool - it's not a good idea to use anything sharp in case you slip. It doesn't require much force if you get the technique right. Start at the bottom, on the arm side, insert the pry tool between the white and black parts right on the corner and lever away the back. You should hear a click. Then insert the tool at the top back corner and you should hear another click.

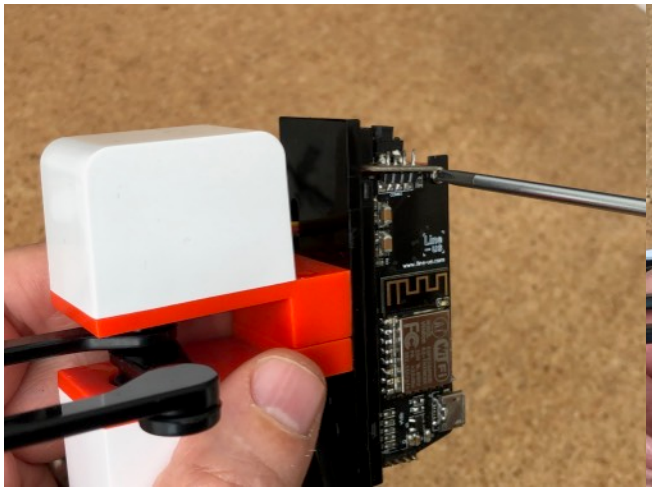
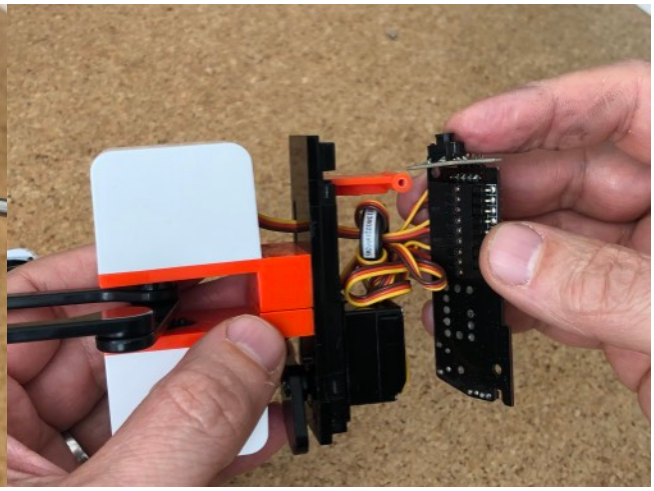


6. you should now be able to pull the back carefully off. One thing to be aware of is that the button will come loose as you remove the back and it's possible that to could get caught somewhere. If it feels like something is stopping the back from coming off it's probably the button. Try turning Line-us upside-down or gently shaking it to free things up. The picture below on the right shows what the button looks like.

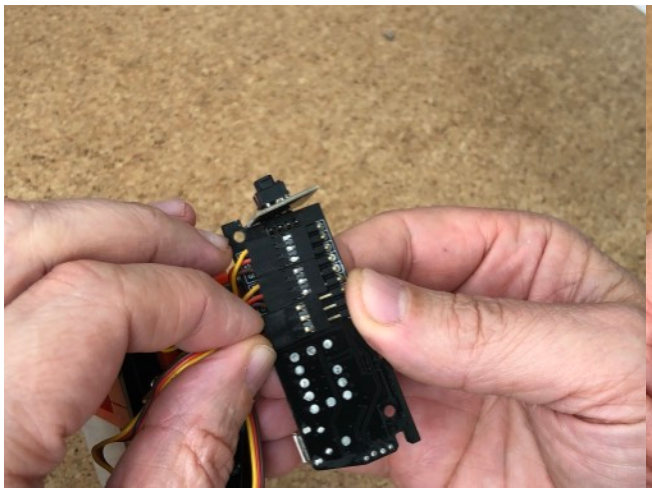
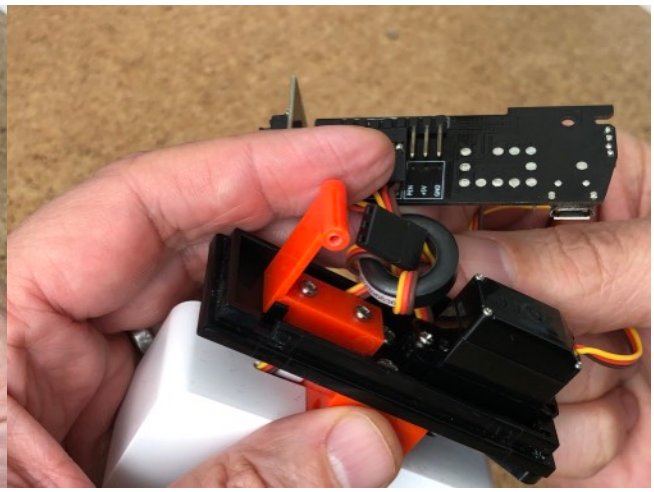




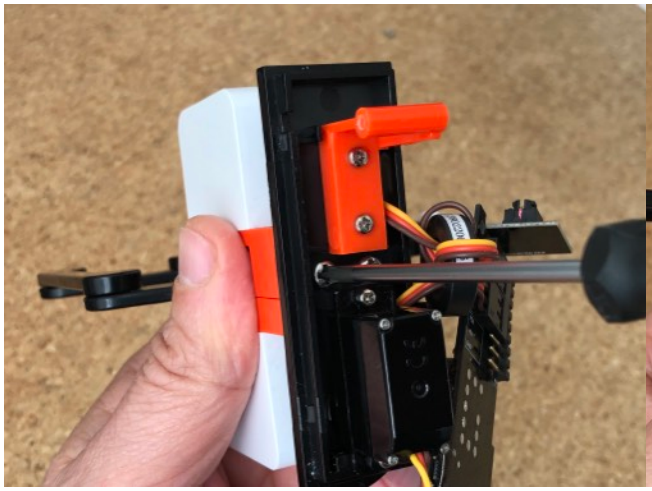
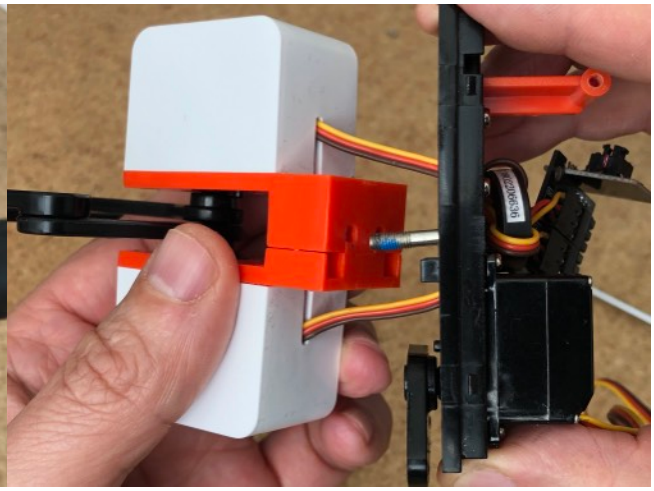
7. Now you're inside your Line-us you'll see the PCB which controls your Line-us! The bit in the middle with the metal cover and the wiggly gold line is the WiFi chip that is its brain. Remove the screw at the top that holds the PCB in place. It can be a bit fully to free the PCB but keep wiggling it and it will come out eventually.

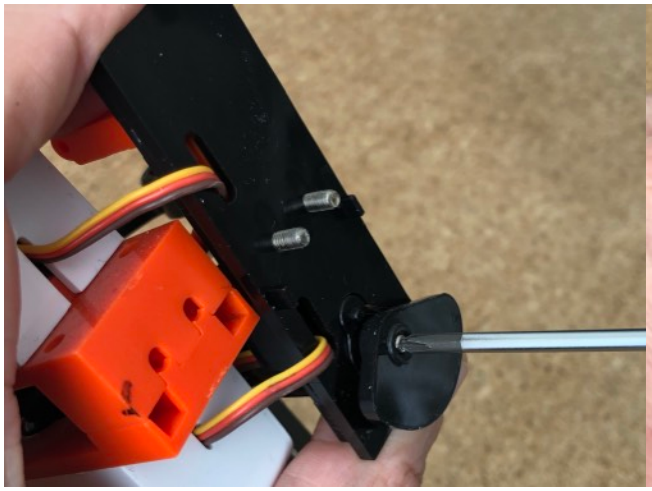
8. You'll no need to unplug the lift servo - it's the bottom one and just pulls out. The cable goes through the thing that looks like a donut, so you'll need to pass it back through the hole. It's a bit tight, but the plug will go through. You might be wondering why Line-us has a donut - it's actually a ferrite ring that absorbs radio signals and it's there to stop the servo cables acting as antennas and causing interference.

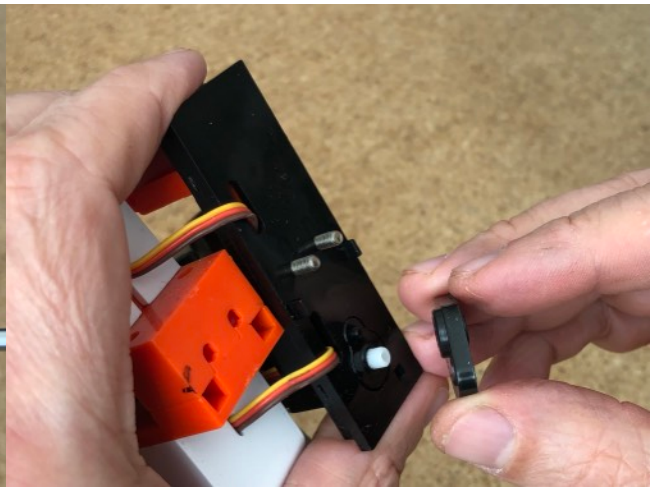



9. Now remove the back plate from the orange U section. Just unscrew the two screws - there's no need to take them right out.

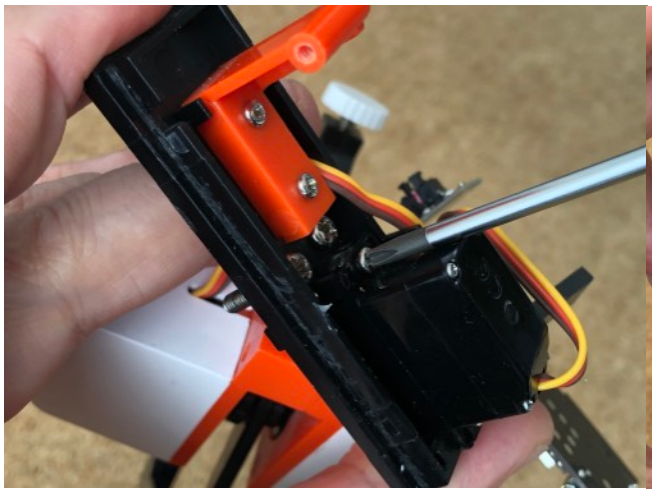



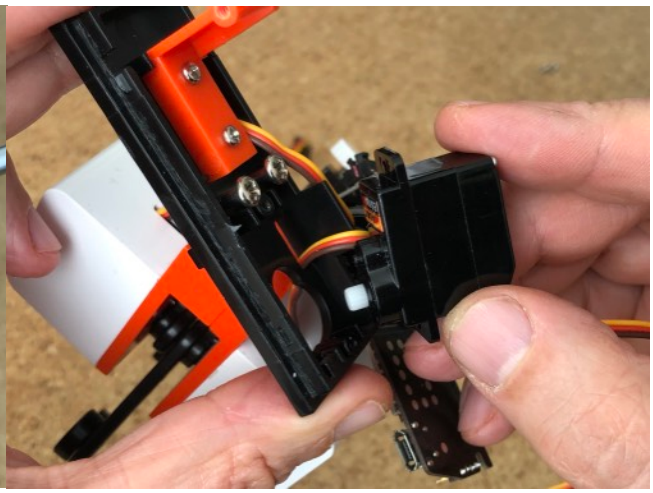
10. Now remove the screw that holds on the cam and remove the cam itself.



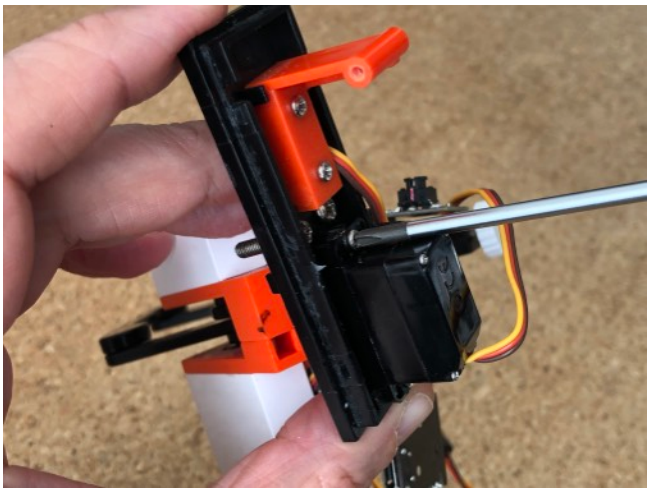


11. We can now finally unscrew the lift servo and remove it! There are two screws - remove them both and then remove the servo.

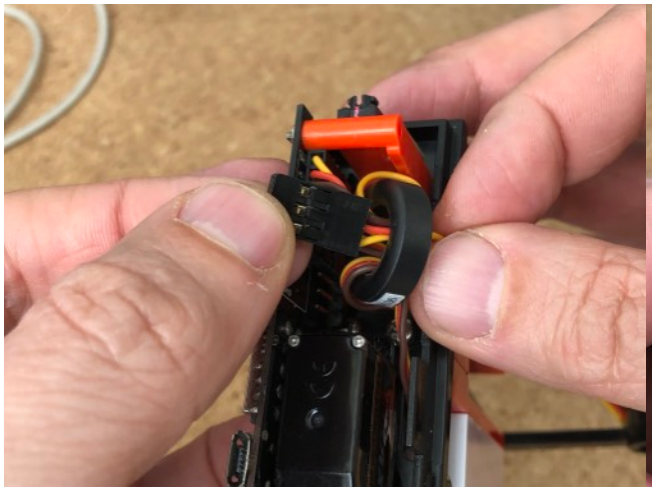
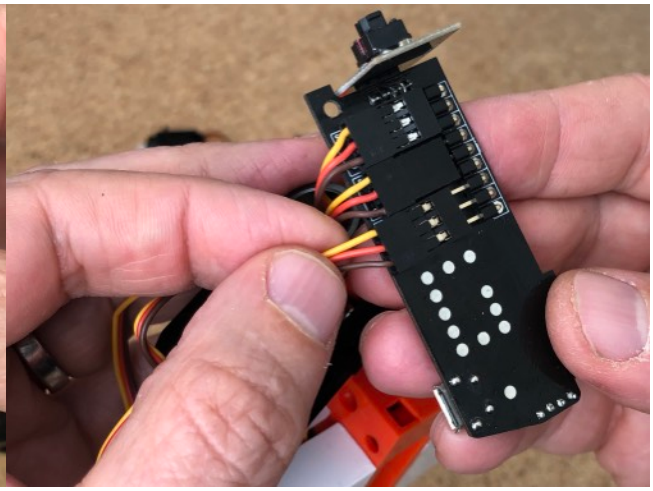




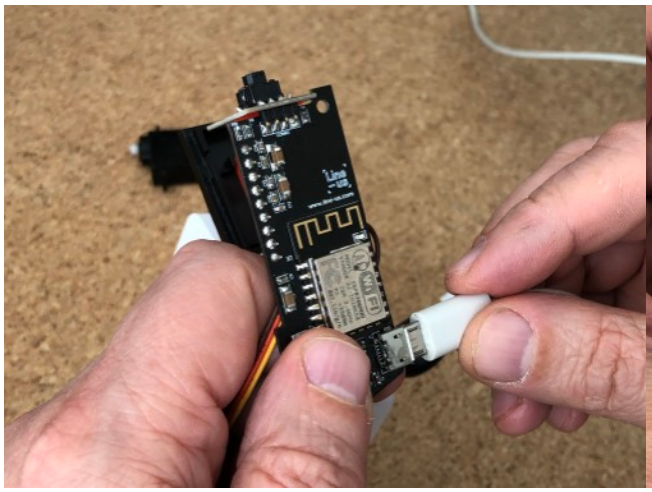
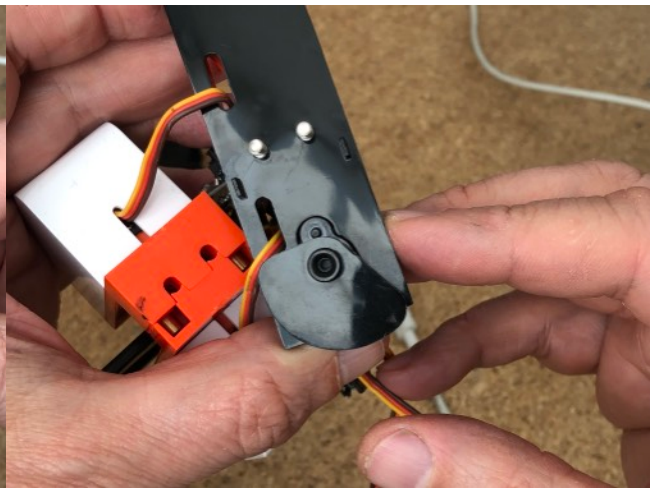
12. Fit the new servo and replace the two screws. Don't over-over-tighten them as they are screwing into the plastic mouldings; just enough so they hold the servo snugly.

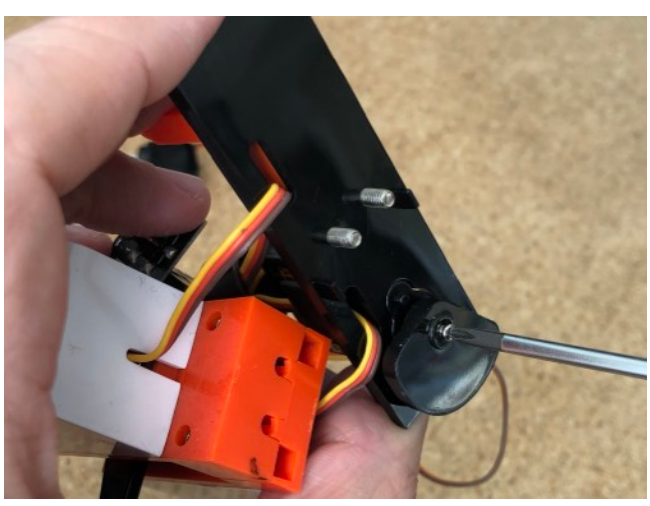


13. Now thread the left servo cable back through the donut and plug it back in to the PCB. It's very important the the plug is fitted with the brown wire at the bottom (just like the other two connections). It's also important that all three pins on the PCB go into the plug. If you find your Line-us doesn't lift after the repair it's most likely to be a problems here - so double check before moving on!

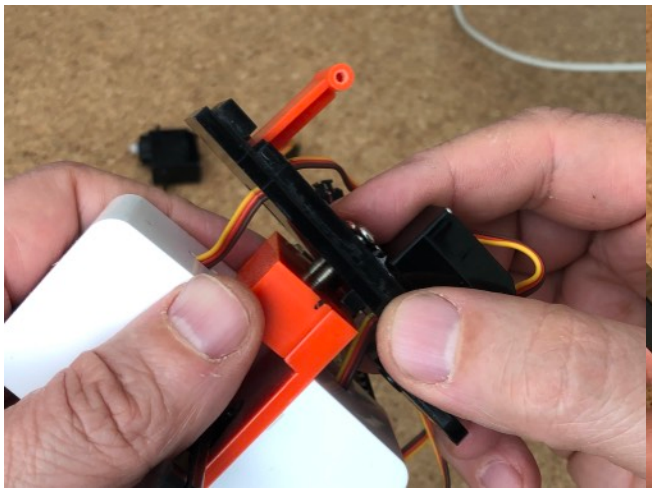
14. Now you'll need to power up your Line-us so that the lift servo goes to the home position. Plug it in and wait for the arm to wave. Fit the cam as in the picture below - so that the top part is as close to horizontal as possible. It's OK if it's a little off, as it will only go in certain positions but pick the one that is closest to horizontal. Be careful not to turn the servo when doing this. If you think you may have, unplug your Line-us and plug it in again to re-set the position.

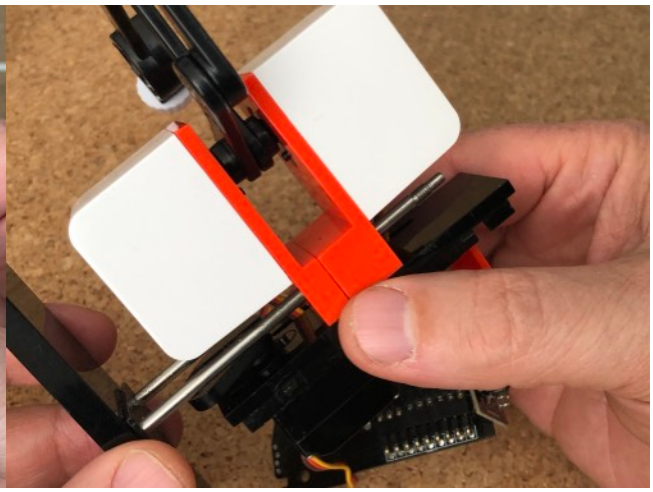





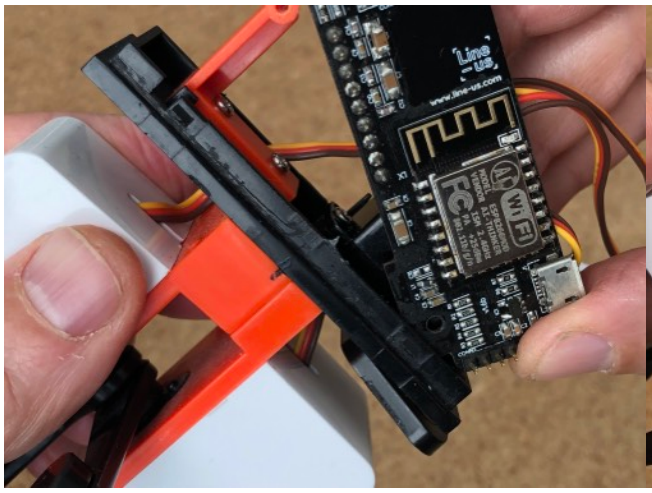
15. Re-fit the servo screw - again, don't over tighten. The unplug and re-connect your Line-us power to make sure the top of the cam is still horizontal.

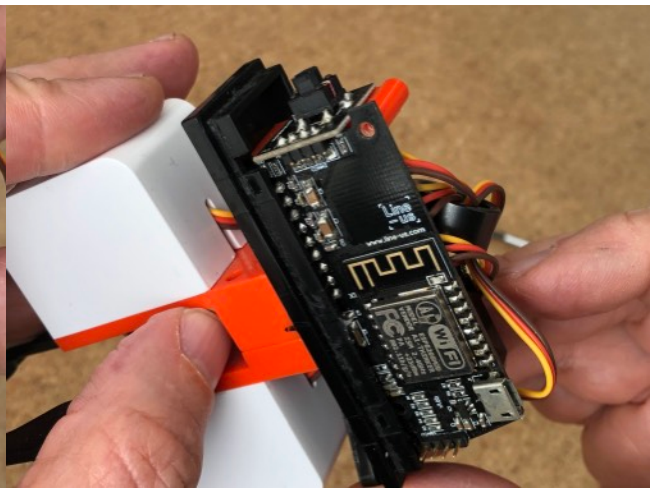
16. Re-fit the back to the orange U and tighten the two screws. These don't need to be very tight - if they are Line-us will not run freely on the vertical rods. It's a good idea to just temporarily re-fit the base and check that it slides freely before moving on.



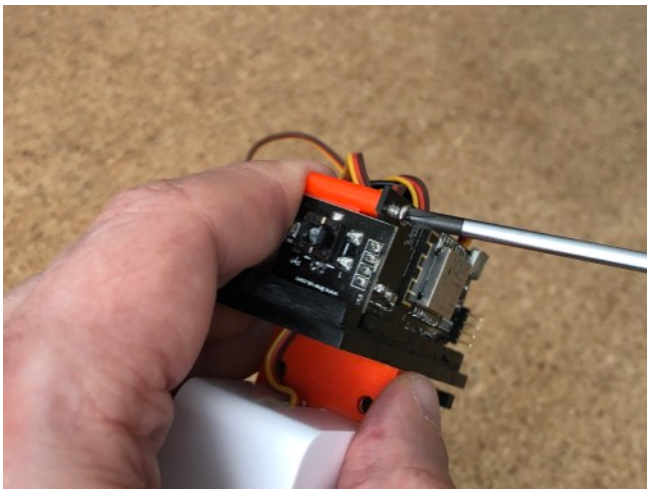


17. You're now ready to re-fit the PCB. The bottom goes in first and it might take a bit of wiggling to get the top part in as it's a tight fit between the orange bracket and the top plug. Keep trying!

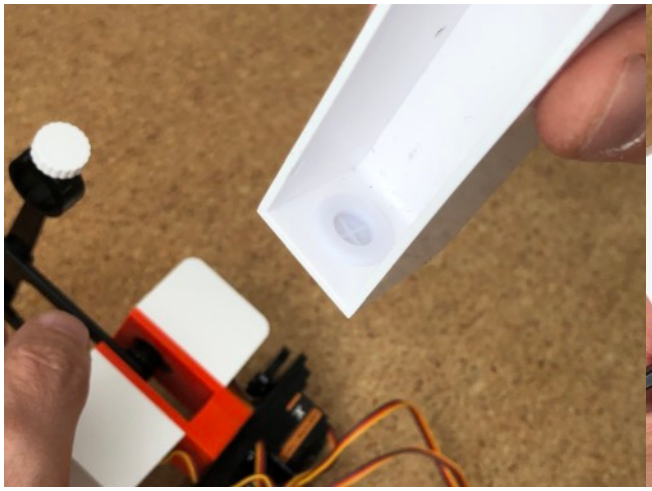
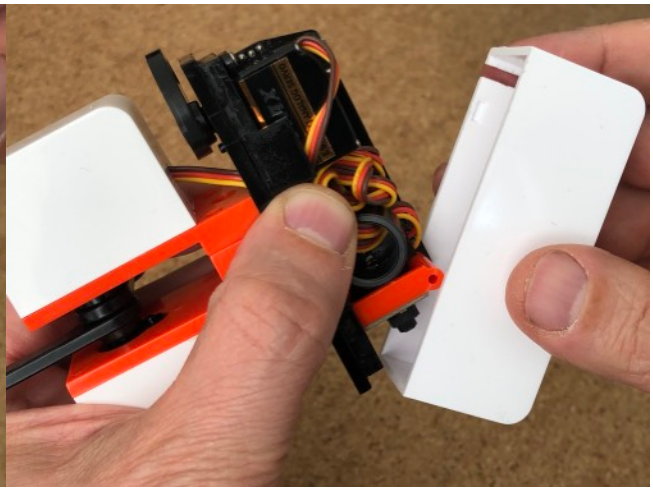




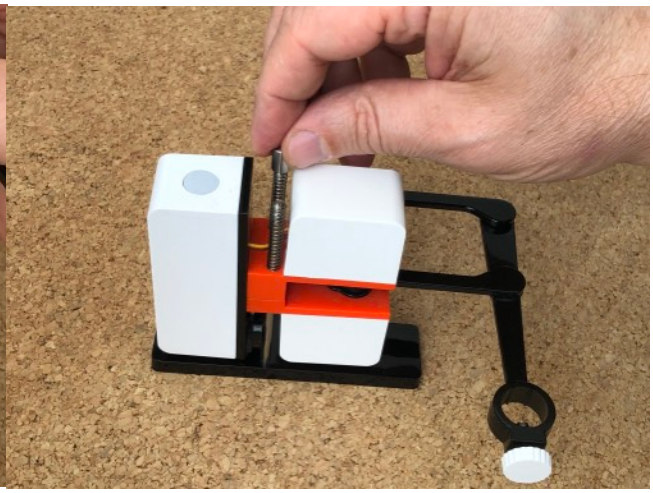
18. You can now screw the PCB to the bracket. Again, not too tight.



19. Nearly there! You need to re-fit the back with Line-us upside-down. Place the button in the hole in the back and fit the back to Line-us staring at the button end. You'll need to make sure all of the cables are tucked in neatly. If everything is in place you'll be able to click the back back on. Just check that there are no cables hanging out and that the button is in place before clicking.

20. Re-fit the Line-us to the base, put the springs back on and screw on the caps.

21. Well done! You've now completed the repair and you can start drawing again.