6 DOF upgrade to SFU gearboxes:

You can review this video before starting an upgrade <u>https://youtu.be/dRWg9C67sLE</u>

once you open the box take our all gearboxes out and determine if you have Mode A or B?

https://dofreality.com/wp-content/uploads/2022/04/A.png

https://dofreality.com/wp-content/uploads/2022/04/B.png

upgrade motors one by one , don't detach all gearboxes at once

If you have P motor, make sure you place the green brushes cups up and down, not left and right



Important: Notice or take a picture of the old gearbox - before the upgrade

here are upgrade instructions Part 1 <u>https://youtu.be/2XLoP-T19Ok</u>

Part 2 https://youtu.be/iiq-ZxtgIXA

you might get different supports o attach SFU to the motor compere to the one on the video



If you can't mount the sensor to the SFU, you can use old sensor longer supports from the old gearbox



Important: if after upgrade the motor black arm will be on the different side compare to one before upgrade. you need to flip the polarity of that motor power wires in the power connector. You can open the connector and swap black and red wires there. See illustration: <u>https://dofreality.com/wp-content/uploads/2022/04/SFUinverse.jpg</u>

if when powered, motor will spin and hit/knock the range limits immediately power it off the box and check the sensor connector to the control box and to the sensor, the sensor coupler connecting both gearbox side and sensor side.

And don't forget to calibrate each motor as per chapter 5.3 https://dofreality.com/support/

For the calibration you might need to unlock motors first (so they are ON in SMC) as per chapter 5.2. You need only to zero "Max Limits" and "Clip Input" in SMC to unlock them.

After calibration please test each motor motion as per chapter 5.4 of main pdf

is 2 left hand side motors and 4 right hand side or other way around it is A or B

pls just follow instructions once you get there it all will be obvious for you

as per one of the following modes

https://dofreality.com/wp-content/uploads/2022/04/6a.png

https://dofreality.com/wp-content/uploads/2022/04/6b.png

mount the motors to the frame

https://youtube.com/playlist?list=PLHL18KMbfR5gkKr8V50N7Zys5jQLojhpi

depending on the gearboxes you got. you should be able to arrange motors only in one mode.

Connect the motors to the control boxes as per green labeling (L1,L2,L3,R1,R2,R3) on the illustrations above. Check overall assembly and correct If needed :

1) if at the max motion range you getting the tightness here , pls inset washers



 check that link triangle is at the proper side of the arm. And you have proper sequence of the washers connecting the vertical link to that triangle. It should be plate M10 washer - M10 lock washer- ball Link – bolt.







3) if your pilot weight is under 440lbs / 200kg you need to remove all three shocks. they ware needed for the previous-gen platforms and now they only restrain the motions

Unless your weight is closer to 330lbs you don't need to keep three shocks. If you need them pls follow new mounting :











if you still have tension in the links or shocks mountings. Unscrew the bolt a bit and screw it back. the skew will be gone.



SUPER MEGA IMPORTANT !

Contact us <u>support@dofreality.com</u> to do the control boxes firmware **CHANGE** mentioning your configuration mode (A or B) and what Com port numbers do you have for the Left and Right boxes .

Without It done you can't power platform on!

Besides mentioned benefits, there is a noticeable difference in the way the gearboxes act **without a power:**

it is not really a disadvantage, they can slide back. so with the pressure or weight applied to the frame, they can slide freely in to the direction pushed. this is the side effect of them having very efficient energy transmission almost without any friction losses like in traditional gearboxes. with power, they hold the position by doing constant micro-adjustments.