ADVANCED PROCEDURES

MANUAL RE-ZERO

A manual re-zero can be helpful if your control software is malfunctioning (or your control computer has bitten the dust), if the servo controller's on-board code is missing, or even if the machine is in a particularly uncomfortable-looking position. However, this is one of the more difficult manual operations you can do with our platform. If you're unsure, contact Force Dynamics **before** continuing.

1   Start up Smart Terminal and connect to the simulator, as above. Then, we turn everything on:

Main power on:	`:SB7`
Motor power on:	`:SH`

2   From here on in, have a hand on the e-stop.

Now, set-up.

Position tracking:	`:PT1,1,1`
Torque limits:	`:TL*=4.5`

Setting the torque limit to 4.5 (rather than its usual 9.98) is intended to ensure that the machine will move as intended while limiting the strain put on the machine when the struts reach their end stops. However, you should still AB (Abort motion), or E-Stop, as soon as the struts touch bottom or top.

Check soft limits forward:	`:FL*=?`
Check soft limits reverse:	`:BL*=?`

'Soft limits' refers to the software limits the servo controller puts on motor movement. If the forward limit is, for example, 20,000 counts, then a command to go to 30,000 counts will result in motor motion only to 20,000 counts. They're sometimes a useful backup in case of other code problems, but in this case we want them turned off. So, if you don't see this:

```
: 2147483647, 2147483647, 2147483647, 2147483647
: -2147483647, -2147483647, -2147483647, -2147483647
```

then...

Reset forward limits:	`:FL*=2147483647`
Reset reverse limits:	`:BL*=-2147483647`

(You can use any numbers of the same sign as long as they're really big - say, `2147483646`, or `2000000000`, or even `2000000`.)