

Utility Arm Motivator - Parts List

These are the parts that I used in assembly of the Utility Arm motivator as shown on my website
http://r2d2.media-conversions.net/images/nextgen.frame/R2.CSR.frame.assm.html#Utility_Arm_Motivators
Feel free to make substitutions. - Frank Pirz

Servo: qty 2 - HiTec HS-645MG

MXL Sprockets - MXLS-01 - Hitec MXL timing belt pulley Product Code : RB-Tib-08

<https://www.robotshop.com/en/mxls-01-hitec-timing-belt-pulley.html>

they also offer a Futaba version

<https://www.robotshop.com/en/lynxmotion-servo-mxl-timing-pulley-futaba.html>

Timing Belts: TBN72MXL019 Timing Belts - MXL Type 3/16 in wide

I chose the narrowest belts because there is some mis-alignment between the two sprockets.

Tension Springs: AUU5-15 Extension Springs - Standard Lengths

both timing belts and springs were obtained from <https://us.misumi-ec.com>

Bearings: qty 4 - FR188-ZZ bearings

while you need 4 you can often find a 10 pack on ebay for less than the cost of single bearings

¼ inch shaft – I used Plastruct #90106 Butyrate tubing – cat # TB8

you can thread a #6 screw in the end of the tube to hold it in place.

Hardware:

Screws – I suggest using Cap Screws (hex socket) since the driver won't slip out

#6-32 screws in: 5/8 – qty 4, 3/4 – qty 2, 1/4 – qty 4

#6-32 nylon nut – qty 2 (drilled out to act as smooth washer)

#6-32 Hex lock nuts nylon insert – qty 6

#4-40 x 3/4 qty 2 – (anchor sprocket to utility arm)

#8-32 x 3/8 qty 2 – (fix vertical position of utility arm on shaft)

If you don't have a local source you can use Bolt Depot <https://www.boltdepot.com/>

Tools:

Benchtop vise

5/16 open end wrench – to hold #6 nylon lock nuts while tightening the mating screws.

[note – you can't use a nutdriver – there isn't enough clearance between the nuts and the servo housing.]

taps for #4-40, #6-32, #8-32 screws & Tap drills

if you are just starting out and don't want to invest too much in tools you might only use infrequently you might want to consider Vermont American 21698 Electrician Drill and Tap Set, 13 Pcs sold by a number of suppliers for around \$20 + ship.