**2.007 - Design and Manufacturing I**

**Spring 2011 Kit List**

|  |  |  |
| --- | --- | --- |
| **#** | **Quantity in Kit** | **Item Description** |
| **Tools** |  |  |
| 1 | 1 | Toolkit Including Measuring Tape and Utility Knife |
| 2 | 1 | Digital Caliper |
| 3 | 1 | Multimeter |
| **Stock** |  |  |
| 4 | 1 | Birch plywood square - nominally 16" x 16" x 3/8" |
| 5 | 1 | 6063-T6 Box Extrusion - 1" x 3" x 12" - 1/8" thick |
| 6 | 1 | 6063-T6 Box Extrusion - 1" x 1" x 18" - 1/8 " thick |
| 7 | 4 | 6063-T6 Box Extrusion - 1" x 1" x 18" - 1/16" thick |
| 8 | 1 | 6061-T6 Bar - 2" x 12" x 1/4" thick |
| 9 | 1 | 6061-T6 Angle Bar - 1.5" x 1.5" x 12" - 1/4" thick |
| 10 | 2 | Al Angle Iron 1" x "1 x 1/8" x 18" |
| 11 | 1 | 6061-T6 Rod - 1/4" x 18" |
| 12 | 2 | 6061-T6 Rod - 5/16" x 18" |
| 13 | 2 | 5052-H32 Sheet - 1/16" x 18" x 18" – available in supply locker |
| 14 | 1 | Steel Hex Rod - 5/16" x 12" |
| 15 | 2 | Aluminum Hex Rod - 5/16" x 12" |
| 16 | 1 | Threaded steel rod - 1/4-20, 12" length |
| 17 | 1 | Steel strip -1" x 0.048" x 24" |
| 18 | 1 | Steel Sheet - 18" x 18" x 1/32" – available in supply locker |
| 19 | 1 | Delrin Rod 1" Diameter x 6" Length |
| 20 | 1 | Delrin Rod 2" Diameter x 4" Length |
| 21 | 2 | ABS Sheet 12" x 12" x 1/4" |
| 22 | 2 | Square HDPE Bar 1/2" x 1/2" x 6" |
| **Wheels** |  |  |
| 23 | 4 | Polypropylene Wheel 3" X 13/16", 1/4" Axle |
| 24 | 2 | Low-Profile Caster Swivel, 1-1/4" X 9/16" |
| 25 | 2 | Solarbotics 2-5/8" Diameter Servo Wheel |
| **Electrical** |  |  |
| 26 | 2 | SpringRC Continuous Rotation Servo |
| 27 | 1 | Vigor VS-2A ANALOG SERVO |
| 28 | 1 | Vigor VS-11 ANALOG SERVO |
| 29 | 1 | Vigor BO-P5 Battery Operated Gear Box |
| 30 | 1 | Nano Carrier v2.1 (PCB, Assemble and Testing) |
| 31 | 1 | Arduino Nano 3.0 |
| 32 | 1 | USB 2.0 MALE A to MINI B 5 PIN Gold Plated Cable - 1.5FT Black |
| 33 | 1 | Li-Po Battery |
| 34 | 1 | Female JST battery pigtail 12cm length |

**Master Inventory**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Category** | **Supplier** | **Part Number** |
| Birch plywood square - nominally 16" x 16" x 3/8" | Wood | Boulter Plywood |  |
| 6063-T6 Box Extrusion - 1" x 3" x 12" - 1/8" thick | Metal | Turner Steel |  |
| 6063-T6 Box Extrusion - 1" x 1" x 18" - 1/8 " thick | Metal | Turner Steel |  |
| 6063-T6 Box Extrusion - 1" x 1" x 18" - 1/16" thick+200 | Metal | Turner Steel |  |
| 6061-T6 Bar - 2" x 12" x 1/4" thick | Metal | Turner Steel |  |
| 6061-T6 Angle Bar - 1.5" x 1.5" x  12" - 1/4" thick | Metal | Turner Steel |  |
| Al Angle Iron 1" x "1 x 1/8" x 18" | Metal | Turner Steel |  |
| 6061-T6 Rod - 1/4" x 18" | Metal | Turner Steel |  |
| 6061-T6 Rod - 5/16" x 18" | Metal | Turner Steel |  |
| 5052-H32 Sheet - 1/16" x 18" x 18" | Metal | Turner Steel |  |
| 2011 Steel Hex Rod - 5/16" x 12" | Metal | Turner Steel |  |
| 2011 Aluminum Hex Rod - 5/16" x 12" | Metal | Turner Steel |  |
| Threaded steel rod - 1/4-20, 12" length | Metal | Turner Steel |  |
| Steel strip -1" x 0.048" x 24" | Metal | Turner Steel |  |
| Steel Sheet - 18" x 18" x 1/32" | Metal | Turner Steel |  |
| Delrin Rod 1" Diameter x 6" Length | Plastic | J. Freeman |  |
| Delrin Rod 2" Diameter x 4" Length | Plastic | J. Freeman |  |
| ABS Sheet 12" x 12" x 1/4" | Plastic | J. Freeman |  |
| Square HDPE Bar 1/2" x 1/2" x 6" | Plastic | J. Freeman |  |
| [1/8" diameter x 36" welding rod](http://www.mcmaster.com/?orderview=new#7973a544/=9nt9i2) | Welding | McMaster | 7973A544 |
| [Polypropylene Wheel 3" X 13/16", 1/4" Axle](http://www.mcmaster.com/#2781t72/=9n9hbt) | Wheels | McMaster | 2781T72 |
| [Low-Profile Caster Swivel, 1-1/4" X 9/16"](http://www.mcmaster.com/#2390t2/=9ns7xv) | Wheels | McMaster | 2390T4 |
| [Solarbotics 2-5/8" Diameter Servo Wheel](http://www.solarbotics.com/products/sw/) | Wheels | Solarbotics | SW |
| [Vigor VS-2A ANALOG SERVO](http://vigorgear.com/index.files/Page751.htm) | Servo | Vigor | VS-2A |
| [Vigor VS-11 ANALOG SERVO](http://vigorgear.com/index.files/Page751.htm) | Servo | Vigor | VS-11 |
| [Vigor VS-10 ANALOG SERVO](http://vigorgear.com/index.files/Page751.htm) | Servo | Vigor | VS-10 |
| [Vigor BO-P6 Battery Operated Gear Box](http://vigorgear.com/index.files/EpicyclicalGearbox.htm) | Servo | Vigor | BO-P6 |
| [Vigor BO-P5 Battery Operated Gear Box](http://vigorgear.com/index.files/EpicyclicalGearbox.htm) | Servo | Vigor | BO-P5 |
| Motor couplings | Servo | Custom |  |
| [SpringRC continuous servo](http://www.pololu.com/catalog/product/1248) | Servo | Pololu | 1248 |
| [Servo Extension Cable 6" Female-Female](http://www.pololu.com/catalog/product/779) | Servo | Pololu | 779 |
| [Servo Extension Cable 12" Female-Female](http://www.pololu.com/catalog/product/780) | Servo | Pololu | 780 |
| [Servo Extension Cable 24" Female-Female](http://www.pololu.com/catalog/product/785) | Servo | Pololu | 785 |
| [Pneumatic add-on Kits (1A)](http://www.vexrobotics.com/275-0275.html) | Pneumatics | Vexrobotics | 275-0275 |
| Tire pump fittings | Pneumatics | Vexrobotics | US3729 |
| 2L Soda Bottles | Pneumatics | Polar |  |
| [O-ring](http://www.mcmaster.com/#9452k74/=ao8cdc) | Pneumatics | McMaster | 9452K74 |
| Constant force spring (small) | Springs | Vulcan | Special order |
| [Compression spring](http://www.mcmaster.com/#9657k152/=9k8noh) | Springs | McMaster | 9657k152 |
| [Extension springs (small)](http://www.mcmaster.com/#9654k14/=9k8nth) | Springs | McMaster | 9654K14 |
| [Extension springs (medium)](http://www.mcmaster.com/#9654k52/=9k8nyu) | Springs | McMaster | 9654K52 |
| [Extension springs (large)](http://www.mcmaster.com/#9654k369/=9k8o4l) | Springs | McMaster | 9654K369 |
| [Torsion spring (small)](http://www.mcmaster.com/#9271k452/=9k8od5) | Springs | McMaster | 9271K452 |
| [Torsion spring (large)](http://www.mcmaster.com/#9271k232/=9k8oiw) | Springs | McMaster | 9271K232 |
| Nano Carrier v2.1 (PCB, Assemble and Testing) | Electronics | Gravitech | Special order |
| Arduino Nano 3.0 | Electronics | Gravitech | Special order |
| [USB 2.0 MALE A to MINI B 5 PIN Gold Plated Cable - 1.5FT](http://www.cmple.com/showproduct.aspx?ProductID=704&SEName=usb-20-male-a-to-mini-b-5-pin-gold-plated-cable-15ft-white) | Electronics | CMPLE | 757-N |
| [3 pin headers](http://www.pololu.com/catalog/product/965) | Electronics | Pololu | 965 |
| [Li-Po batteries](http://www.hobbyking.com/hobbyking/store/uh_viewItem.asp?idProduct=6520) | Electronics | Hobby King | Z5002S15C |
| 9V Batteries | Electronics |  |  |
| AA Batteries | Electronics |  |  |
| [Female JST battery pigtail 12cm length (10pcs/bag)](http://www.hobbyking.com/hobbyking/store/uh_viewItem.asp?idProduct=9683) | Electronics | Hobby King | AM-9017A |
| [Resistors (1 to 100k Ohms)](http://www.robotshop.com/elenco-resistor-kit.html) | Electronics | Robotshop | RB-Ibo-94 |
| [Capacitors (various values)](https://www.alliedelec.com/search/productdetail.aspx?SKU=6350240) | Electronics | Allied | 635-0240 |
| [3mm LEDs (green)](http://www.newark.com/osram/lg3360-kn/led-lamp/dp/05M0498?Ntt=05M0498) | Electronics | Newark | 05M0544 |
| [3mm LEDs (red)](http://www.newark.com/osram/ls3360-kl/led-lamp/dp/05M0544?Ntt=05M0544) | Electronics | Newark | 99F5218 |
| [Photodiodes](http://www.newark.com/eg-g-vactec/vt93n2/light-dependent-resistor/dp/99F5218?Ntt=99F5218) | Electronics | Newark | 95M9196 |
| [Switching transistors](http://www.newark.com/fairchild-semiconductor/2n3904/transistor-npn-to-92/dp/95M9196?Ntt=95M9196) | Electronics | Newark | 20C4477 |
| [MOSFETs](http://www.newark.com/fairchild-semiconductor/fqp30n06l/n-channel-mosfet-60v-32a-to-220/dp/20C4477?Ntt=20C4477) | Electronics | Newark | QTR-1A |
| [Line following sensors](http://www.pololu.com/catalog/product/958) | Electronics | Pololu | 958 |
| [Contact switches w/out roller](http://www.pololu.com/catalog/product/1403) | Electronics | Pololu | 1403 |
| [Contact switches w/ roller](http://www.pololu.com/catalog/product/1404) | Electronics | Pololu | 1404 |
| [350 pc. Pre-formed jumper wire](http://www.pololu.com/catalog/product/313) | Electronics | Pololu | 313 |
| Laser pointers | Electronics | Amazon |  |
| [TI Quadruple Half H Driver 16-Pin PDIP Tube](http://www.arrownac.com/) | Electronics | Arrowmac | SN754410NE |
| [Sharp GP2Y0A21YK0F analog (10-80cm)](http://www.pololu.com/catalog/product/136) | Electronics | Pololu | 136 |
| [FlexiForce Sensor Kit - 25 lbs](http://www.sparkfun.com/commerce/product_info.php?products_id=8712) | Electronics | Spark Fun Electronics | SEN-08712 |
| [FlexiForce Sensor Kit - 1 lbs](http://www.sparkfun.com/commerce/product_info.php?products_id=8713) | Electronics | Spark Fun Electronics | SEN-08713 |
| [Bluetooth Modem - BlueSMiRF Silver](http://www.sparkfun.com/products/10269) | Electronics | Spark Fun Electronics | WRL-10269 |
| [XBee Explorer Dongle](http://www.sparkfun.com/products/9819) | Electronics | Spark Fun Electronics | WRL-09819 |
| [XBee 1mW Chip Antenna](http://www.sparkfun.com/products/8664) | Electronics | Spark Fun Electronics | WRL-08664 |
| [Nylon spur gear, module 1, 12 teeth](https://sdp-si.com/eStore/PartDetail.asp?Opener=Group&PartID=57565&GroupID=338) | Gears | SDP/SI | A 1M 2MYZ10012 |
| [Nylon spur gear, module 1, 24 teeth](https://sdp-si.com/eStore/PartDetail.asp?Opener=Group&PartID=1179&GroupID=338) | Gears | SDP/SI | A 1M 2MYZ10024 |
| [Nylon spur gear, module 1, 36 teeth](https://sdp-si.com/eStore/PartDetail.asp?Opener=Group&PartID=1182&GroupID=338) | Gears | SDP/SI | A 1M 2MYZ10036 |
| [Nylon bevel gear, 24 diametral pitch, 24T](https://sdp-si.com/eStore/PartDetail.asp?Opener=Group&PartID=32193&GroupID=613) | Gears | SDP/SI | A 1M 3-Y24024 |
| [Nylon bevel gear, 24 diametral pitch, 48T](https://sdp-si.com/eStore/PartDetail.asp?Opener=Group&PartID=25698&GroupID=613) | Gears | SDP/SI | A 1M 3-Y24048 |
| [Length 12", 24 Diametral Pitch, 1/4" Face, 1/4" Height](https://sdp-si.com/eStore/PartDetail.asp?Opener=Group&PartID=1283&GroupID=479) | Gears | SDP/SI | A 1N12-N24 |
| [Timing Pulley, 16T, 1.248"OD, .5" Wide](https://sdp-si.com/eStore/PartDetail.asp?Opener=Group&PartID=31114&GroupID=218) | Gears | SDP/SI | A 6M 3-16SF037 |
| [.2" pitch, 1/4" wide Neoprene Timing Belt](http://www.mcmaster.com/#7959k24/=a1p6n4) | Gears | McMaster | 7959K24 |
| [Spring pins](http://www.mcmaster.com/#98296a133/=9nbpyu) | Supply | McMaster | 98296A133 |
| [1/4" Nylon bushing](http://www.mcmaster.com/#6389k627/=9nbq2x) | Supply | McMaster | 6389K627 |
| [5/16" Nylon bushing](http://www.mcmaster.com/#6389k626/=9nbqcd) | Supply | McMaster | 6389K626 |
| [E clip for 1/4" shaft](http://www.mcmaster.com/#97431a300/=9nbqi1) | Supply | McMaster | 97431A300 |
| [E clip for 5/16" shaft](http://www.mcmaster.com/#97431a310/=9nbqn3) | Supply | McMaster | 97431A310 |
| [1/8" Flat push-on retaining clips](http://www.mcmaster.com/#catalog/116/3197/=9nbqsj) | Supply | McMaster | 94807A024 |
| [1/4" Flat push-on retaining clips](http://www.mcmaster.com/#catalog/116/3197/=9nbr1i) | Supply | McMaster | 94807A029 |
| [5/16" Flat push-on retaining clips](http://www.mcmaster.com/#catalog/116/3197/=9nbr76) | Supply | McMaster | 94807A030 |
| [1/8" Washer - .130" ID, .285" OD, .054"-.070" Thk](http://www.mcmaster.com/#90295a070/=9nbras) | Supply | McMaster | 90295A070 |
| [1/4" Washer - .260" ID,.687" OD, .054"-.070" Thk](http://www.mcmaster.com/#90295a150/=9nbreq) | Supply | McMaster | 90295A150 |
| [5/16" Washer - .340" ID,.740" OD,.057"-.067" Thk](http://www.mcmaster.com/#90295a160/=9nbrit) | Supply | McMaster | 90295A160 |
| [1/8"D x 3/4"L Cotter Pins](http://www.mcmaster.com/#98338a473/=9nbvp1) | Supply | McMaster | 98338A473 |
| [Great Planes Threaded Ball Links 2-56 Threaded Bulk 6 sets](http://www3.towerhobbies.com/cgi-bin/wti0001p?&I=LXK091&P=7) | Supply | Hobby Lobby | GPMQ3841 |
| [Great Planes Wheel Collars 3/32"](http://www3.towerhobbies.com/cgi-bin/wti0001p?&I=LXK186&P=FR) | Supply | Tower Hobbies | GPMQ4302 |
| [Great Planes Tail Wheels 1" (25 mm) 1 pc.](http://www3.towerhobbies.com/cgi-bin/wti0001p?&I=LXK160) | Supply | Tower Hobbies | GPMQ4241 |
| [Viton Cord 1/8"](http://www.mcmaster.com/#7643k75/=9nbs65) | Supply | McMaster | 7643K75 |
| [Buna-N rubber sheet stock](http://www.mcmaster.com/#9023k221/=9nbsbc) | Supply | McMaster | 9023K221 |
| [Braided Nylon Twine](http://www.mcmaster.com/#8936t435/=9nbsg7) | Supply | McMaster | 2057T75 |
| [Alcohol wipes](http://www.mcmaster.com/#alcohol-wipes/=9nsfnt) | Supply | McMaster | 54845T18 |
| [Two part epoxy packets](http://www.all-spec.com/products/Hardman/Tapes_and_Adhesives%7CAdhesives%7CADH-00/04001.html) | Supply | Hardman Adhesives | 4001 |
| [Zip tie wraps - 4" length, .1" width](http://www.mcmaster.com/#catalog/116/1488/=9nbsm5) | Supply | McMaster | 7130K12 |
| [Cable zip tie mounts](http://www.mcmaster.com/#catalog/116/1487/=9nbvjb) | Supply | McMaster | 7566K23 |
| [1-1/16"-2" range, .5" width, Hose Clamps](http://www.mcmaster.com/#5415k17/=9nbt37) | Supply | McMaster | 5415K17 |
| [Rubber bands](http://www.mcmaster.com/#rubber-bands/=9nsero) | Supply | McMaster | 12205T51 |
| [Loctites](http://www.mcmaster.com/#45855k72/=a1quvb) | Supply | McMaster | 45855K72 |
| [Pop rivets 0.065-.125](http://www.mcmaster.com/?orderview=new#97525a615/=afmkxh) | Supply | McMaster | 97525A615 |
| [Pop rivets 0.188-0.250](http://www.mcmaster.com/#97525a625/=afmlbt) | Supply | McMaster | 97525A625 |
| [Hot Glue Sticks](http://www.mcmaster.com/#7518a729/=9nbwgq) | Supply | McMaster | 7518A729 |
| [PVC Gloves (small)](http://www.mcmaster.com/#catalog/116/1752/=9ncfye) | Supply | McMaster | 5327T8 |
| [PVC Gloves (medium)](http://www.mcmaster.com/#catalog/116/1752/=9ncfye) | Supply | McMaster | 5327T8 |
| [PVC Gloves (large)](http://www.mcmaster.com/#catalog/116/1752/=9ncfye) | Supply | McMaster | 5327T8 |
| Electrical Wires (black, red, white) | Supply |  |  |
| 0.031" Lead Free Solder | Supply |  |  |
| Heat shrink, various diameters | Supply |  |  |
| Rubber stoppers |  |  |  |
| Syringes |  |  |  |
| [Popsickle sticks](http://www.mcmaster.com/#7632a11/=afmixh) | Supply | McMaster | 7632A11 |
| [Steel hinge](http://www.mcmaster.com/#1569a2/=ag1q6v) | Supply | McMaster | 1569A2 |
| [3/16" Rubber Grommet](http://www.mcmaster.com/#9600k38/=afzxgv) | Supply | McMaster | 9600K38 |
| [1/4" Retaining Rings](http://www.mcmaster.com/#97622a111/=ag1qfb) | Supply | McMaster | 97622A111 |
| [15/64 bushing](http://www.mcmaster.com/#6389k402/=ag1qjm) | Supply | McMaster | 6389K402 |