

List of Material for ME 72 Project Teams

Each team's contest entry must be constructed with no more than the list of materials given below, in the extra sheets of this spreadsheet, and other materials described in the contest rules. You may use more than this amount of material during the development of your contest entry, but ALL components of the final entry can not contain more than this amount of material. The material in this "Desk" sheet will be available on a bench in the shop. The material in the "Display" sheet can be found on the display board in the shop. You can request these materials from the shop staff or class TAs. Similarly, Mylar material for ballon making is available from the ME Shop Staff.

of Kits Needed: 13

Item	Amt	Unit	Source	# Total	# in Shop	Go Buy:
Acrylic 1/8" x 6" x 24"	3	ea		39	0	39
Acrylic 1/4" X 6" X 24"	2	ea		26	15	11
Acrylic 1/2" X 6" X 24"	2	ea		26	32	0
Particle Board 1/4" X 12" X 12"	2	ea	Carpenter shop	26	19	7
aluminum sheet 1/2" X 6" X 12"	2	ea		26	15	11
aluminum sheet 1/4" X 6" X 12"	2	ea		26	13	13
aluminum sheet 1/8" X 6" X 12"	6	ea		78	13	65
aluminum sheet 1/8" X 2" X 12"	3	ea		39	26	13
aluminum sheet .032 6" X 12"	4	ea	Stockroom	52	26	26
aluminum sheet .020 1' X 4'	3	ea	Aircraft Spruce, 3003	39	0	39
aluminum bar 3/8" X 1" X 18"	2	ea		26	13	13
aluminum bar 3/4" X 1" X 12"	2	ea		26	13	13
aluminum bar 1/2" X 1" X 18"	3	ea		39	26	13
aluminum angle 3/4" x 1/8" thick, 18"	3	ea		39	26	13
aluminum angle 1" x 1/8" thick, 18"	3	ea		39	26	13
PIC shaft 3/16" OD X 24"	3	ea		39	7	32
PIC shaft 1/4" OD X 24"	2	ea		26	11	15
steel rod 1/2" X 6"	2	ea		26	13	13
aluminum rod 1/2" OD X 12"	2	ea	Stockroom	26	13	13
aluminum rod 1" OD X 6"	3	ea		39	0	39
brass tube, 9/32" OD x 12"	3	ea		39	49	0
brass tube, 7/32" OD x 12"	3	ea		39	17	22
brass tube, 3/16" OD x 12"	3	ea		39	41	0
brass tube, 1/4" OD x 12"	3	ea		39	40	0
brass tube, 3/8" OD x 1/4" ID x 6"	3	ea		39	12	27
brass rod, 1/4" OD x 12"	3	ea		39	19	20
1/8" x 36" wooden dowel	2	ea	McMaster 9683K51	26	24	2
1/4" x 36" wooden dowel	2	ea	McMaster 9683K53	26	17	9
3/16" x 36" wooden dowel	2	ea	McMaster 9683K52	26	26	0
Polystyrene Sheet, 1" 2' X 4'	2	ea		26	1	25
Polystyrene Sheet, 3/16" 1' X 4'	2	ea		26	9	17
Polyester Cloth, 24" X 60"	1	ea	Aircraft Spruce	13		13
Plastic Mesh, 18" x 48"	1	ea	out of production	13	30	0
Medium Rubber Bands	10	ea	Office Depot Size 64	130	90	40
Mylar	144	sq. ft				

Helium Gas	2.5 m ³
Putty	6 Oz
Balsa Wood, 6" X 36" X 1/8 "	1
Balsa Wood, 6" X 36" X 1/16 "	1
Rapid Prototyping Material	5 in ³

Display Board
of Kits Needed:

#	Item	Quantity	Unit	Source	# Total	# in Shop	Go Buy:
1	Black Gears (12, 36, 48, 64 tooth)	16	total	Shop	0	150	0
2	3/16"ID ball bearing	6	ea	Precision Bearing	0	73	0
3	1/4"ID ball bearing	8	ea	Precision Bearing	0	6	0
4	Bushing 1/4" ID	10	ea		0	0	0
7	Double sided tape	10	ft	Aircraft Spruce	0		0
8	Clear Packing tape	10	ft	Lowe's	0		0
9	1" Foam tape	36	in	mcmaster.com, 7598A2	0		0
10	adhesive foam padding	16	in		0		0
11	1" Adhesive Velcro	2	m		0		0
12	9 tooth small white gear	10	ea		0		0
13	9 tooth small pink gear	10	ea		0		0
14	14 tooth small white gear	8	ea		0		0
15	tan combo gear	8	ea		0		0
16	paper clip (2")	10	ea	Office Depot	0		0
17	Rubber Bands (3")	15	ea	Office Depot	0		0
18	String 50#	30	m		0		0
19	Orange-go	10	ft	Shop	0		0
20	Servo Extension Lead	16	ea	servohut.com	0		0
21	Single Conductor Hookup Wire	any amount, <i>for electrical use only</i>					
22	Yellow CAT-5 Cable	6	ft		0		0
23	Battery Connector (any gender)	8	ea		0		0
24	Polyethylene 1/4" OD	6	ft		0		0
25	Polyethylene 5/16" OD	6	ft		0		0
26	Polyethylene 3/8" OD	6	ft		0		0
27	Nalgene Tubing 5/16" OD	5	ft		0		0
28	Cable Tie, 40#, 5-5/8" x 0.142"	8	ea	digikey.com, PLT1.5I-M	0	880	0
29	Red plastic strip	12	ea		0	500	0
30	Tongue Depressor	10	ea		0	28	0
31	Heat Shrink 1.25" X 6"	2	ea		0	42	0
32	Heat Shrink 1/2"	1	ft		0	40	0
33	Heat Shrink 5/16"	1	ft		0		0
34	Heat Shrink 3/16"	2	ft		0		0
35	Heat Shrink 1/8"	2	ft		0		0
36	black plastic paddle	4	ea		0	50	0
37	Bushing .080 ID	15	ea		0		0
38	Pin .080 X 1.5"	15	ea		0	1800	0
39	Pin .063 X 1.5"	15	ea		0	1230	0
40	Standoff 1.25" 8-32	4	ea		0	65	0
42	Socket cap 1/4-20 2.75" w/nut	4	ea		0		0
43	Socket cap 1/4-20 2" w/nut	4	ea		0		0
44	Black turbine rotor	2	ea		0	30	0
45	White turbine rotor	2	ea		0	77	0
46	notched rubber grommet	6	ea		0		0
47	Gray ring	6	ea		0	34	0
48	translucent plastic cap	10	ea		0	5300	0
49	plastic gear spline	6	ea		0	2630	0
50	Black plastic cap	10	ea		0		0
51	Steel ball 1/2"	4	ea		0	209	0

52 Stamped Steel Drum	2 ea		0	34	0
53 plastic cam ratchet	10 ea		0		0
54 Rectangular magnet	6 ea		0		0
55 Magnet small circle	3 ea		0		0
56 Magnet large circle	3 ea		0		0
57 Washer 1.375" OD	3 ea		0		0
58 Washer .805"	3 ea		0		0
59 Radially grooved rubber washer	3 ea		0	820	0
60 Assorted Springs	20 total		0		0
61 Binder ring 3"	2 ea		0		0
62 Assorted O-rings	10 total		0		0
63 8-1/2"x11" Printer Paper, 20#	2 sheets		0		0
64 Standard Index Card, 4" X 6"	10 ea		0		0
65 .035" Music Wire	20 ft	mcmaster.com 9666K27	0		0
66 .051" Music Wire	15 ft	mcmaster.com, 9666K3	0		0
67 Plastic Conduit	20 ft	mcmaster.com, 5181K1	0		0
68 Gray Model Airplane Propeller	4 ea		0		0
			0		0

Radio Kit

of Kits Needed: 13

	Amt	Unit	Source	# Total	# in Shop	Go Buy:
Standard Servo TS-53	4	ea	Tower Hobbie	52	40	12
Micro Servo HS-81	4	ea	Tower Hobbie	52	64	0
Small Battery, (Radio Reciever)	3	ea	Tower Hobbie	39	26	13
Large Battery, 2200mah 12V (DC motors)	3	ea		39	26	13
Radio Receiver	3	ea	Tower Hobbie	39	26	13
NOVAK "Reactor" Speed Controller	4	ea	out of product	52	47	5
NOVAK "Super Duty" Speed Controller	4	ea	Tower Hobbie	52	27	25
Small Blue Speed Controller	2 (per team)					
Large Brushed Motor	4	ea	Mabuchi	52	86	0
Small Brushed Motor	4	ea	Mabuchi	52	208	0
	2 (per team)					

Each team may have 8 speed controllers maximum, with up to two of the small, lightweight blue speed controllers in the total of 8 controllers

Bulk Fasteners

Only the following types and sizes of fasteners are allowed.
Any assortment may be used satisfying the following quantity constraints.
You may obtain these from the tool crib. If the one you want is not there, ask.

Screws:	120 pieces
Washers	50 pieces
Nuts:	100 pieces
Set Screws	40 pieces
Pop Rivets	100 pieces

SCREWS

Socket Cap Screws (Black Oxide)

Size:	Available Lengths:
4-40	1/2"
6-32	1/4" 1/2" 3/4" 1"
8-32	1/4" 1/2" 3/4" 1"
10-32	1/4" 1/2" 3/4" 1"
1/4-20	1/2"

Flat Head Screws

Size	Available Lengths:
4-40	1/2" 1"
6-32	1/4" 1/2" 1"
8-32	1/4" 1/2" 1"
10-32	1/2" 1"

WASHERS

#6
#8
#10
1/4"

NUTS

6-32
8-32
10-32
1/4-20

SET SCREWS

6-32	1/4" 3/8" 1/2"
8-32	1/4" 3/8" 1/2"
10-32	1/4" 3/8" 1/2"

POP RIVETS

1/8" Hole Aluminum Rivets, Lengths Unspecified

SPECIAL FASTENERS

Metric M2.5 and M3 cap screws in varying lengths are available for the exclusive use of attaching the motors, but will not count against the 60 screw total.