

**ROCKET BODY**

Part	Vendor	Part Number	Quantity		Cost	Total
3" Cellular ABS pipe	Home Depot	193828	1	Each	\$15.86	\$15.86
						\$15.86

**FINS**

Part	Vendor	Part Number	Quantity		Cost	Total
4" x 48" x 1/4" HDPE sheets	McMaster.com	8671K69	2	Each	\$9.72	\$19.44
Aluminum u-channel	McMaster.com	9001K32	1	Each	\$17.37	\$17.37
8-32 Steel machine screw hex nut	McMaster.com	90480A009	1	Pack	\$1.49	\$1.49
8-32x1/2" Stainless steel machine hex screw	McMaster.com	92314A194	1	Pack	\$12.26	\$12.26
8-32 Steel machine nut with tooth washer	McMaster.com	90675A009	1	Pack	\$2.78	\$2.78
Loctite E-00CL Fast setting epoxy	McMaster.com	6430A16	1	Each	\$12.16	\$12.16
Loctite applicator gun	McMaster.com	74695A71	1	Each	\$27.74	\$27.74
Loctite mixing nozzle	McMaster.com	74695A12	1	Each	\$1.21	\$1.21
6-20 x 3/8" Self tapping screw	McMaster.com	94060A146	1	Pack	\$4.15	\$4.15
						\$98.60

The Loctite epoxy, applicator and mixing nozzle are for convenience only, any two part epoxy can be used. Many McMaster part numbers are for *packages* of bolts or screws. If only one or two pieces are required and can be purchased individually through another supplier, there would be a considerable savings in the overall project cost.

**If purchased by the piece, the cost for this section would be approximately \$49.00**

**NOSE CONE**

Part	Vendor	Part Number	Quantity		Cost	Total
1/4-20 x 7/8" Coupling nut	McMaster.com	90264A435	2	Each	\$0.19	\$0.38
Steel round washer for 1/4" screw	McMaster.com	91090A107	1	Pack	\$4.60	\$4.60
1/4-20 Eyebolt with nut - 1 1/2" length	McMaster.com	9489T118	1	Pack	\$3.99	\$3.99
1/4-20 x 4" Fully threaded aluminum stud	McMaster.com	93225A874	1	Pack	\$8.05	\$8.05
1/4-20 x 3/8" Steel button head hex screw	McMaster.com	91255A535	1	Pack	\$13.55	\$13.55
Steel wood screw #6 x 1" philips flat head	McMaster.com	90252A106	1	Pack	\$6.88	\$6.88
16 oz. Plastic wine glass	Kidsmartliving.com	CR062-612	1	Each	\$1.99	\$1.99
3" Diameter x 2" delrin rod	McMaster.com	9986K13	1	Each	\$18.05	\$18.05
PVC Drain pipe 3" diameter	McMaster.com	2426K24	1	Each	\$7.06	\$7.06
						\$64.55

Many McMaster part numbers are for *packages* of bolts or screws. If only one or two pieces are required and can be purchased individually through another supplier, there would be a considerable savings in the overall project cost.

**If purchased by the piece, the cost for this section would be approximately \$37.00**

**APOGEE DETECTOR - PART 1**

Part	Vendor	Part Number	Quantity		Cost	Total
3" Diameter black delrin rod x 6"	McMaster.com	9986K16	1	Each	\$33.25	\$33.25
Press fit threaded insert 1/4-20 x 15/32"	McMaster.com	97191A230	2	Pack	\$14.98	\$29.96
Structural fiberglass tube 1" x 1" x 60" - 1/8" wall	McMaster.com	8548K21	1	Each	\$17.11	\$17.11
Steel U-bolt 1/4-20 x 1 1/2"	McMaster.com	3043T12	1	Pack	\$5.86	\$5.86
Steel hex nut 1/4-20	McMaster.com	93827A211	1	Pack	\$6.11	\$6.11
Aluminum threaded round standoff 10-32 x 1/2"	McMaster.com	93330A468	4	Each	\$0.44	\$1.76
Aluminum threaded round standoff 10-32 x 2"	McMaster.com	93330A493	4	Each	\$1.36	\$5.44
Steel machine screw 1/4-20 x 1 1/2"	McMaster.com	90272A546	1	Pack	\$12.08	\$12.08
Steel machine screw 10-32 x 4"	McMaster.com	99117A700	1	Pack	\$7.71	\$7.71
Steel machine screw 10-32 x 1 1/2"	McMaster.com	90272A836	1	Pack	\$8.44	\$8.44
Touch safe terminal block	McMaster.com	7618K617	1	Each	\$3.31	\$3.31
Steel ball 3/4" diameter	McMaster.com	96455K59	1	Pack	\$14.43	\$14.43
No. 6 x 3/4" Steel sheet metal screw	McMaster.com	90190A151	1	Pack	\$3.94	\$3.94
Steel fully threaded stud 1/4-20 x 1"	McMaster.com	95475A542	1	Pack	\$12.69	\$12.69
Stainless steel cotter pin 3/32" x 2 1/2"	McMaster.com	98401A449	1	Pack	\$9.14	\$9.14
Steel split ring 1.062" ID	McMaster.com	86805T38	1	Pack	\$12.20	\$12.20
3M VHB Double sided foam tape	McMaster.com	75935A11	1	Roll	\$18.20	\$18.20
						\$201.63

Many McMaster part numbers are for *packages* of bolts or screws. If only one or two pieces are required and can be purchased individually through another supplier, there would be a considerable savings in the overall project cost.

**If purchased by the piece, the cost for this section would be approximately \$115.00**

**APOGEE DETECTOR - PART 2**

Part	Vendor	Part Number	Quantity		Cost	Total
Stranded single conductor wire - white	McMaster.com	7587K325	1	Roll	\$8.22	\$8.22
9 Volt snap in battery holder	McMaster.com	7712K62	1	Each	\$2.58	\$2.58
Snap acting SPDT switch with roller lever	McMaster.com	7193K2	1	Each	\$6.10	\$6.10
Compact spade terminal relay 12vdc DPDT	McMaster.com	69585K87	1	Each	\$8.07	\$8.07
Nylon cable ties 4"	McMaster.com	7130K52	1	Pack	\$2.25	\$2.25
Double loop shaft coupling 1/4" x 1/4" bore	McMaster.com	6183K33	1	Each	\$13.30	\$13.30
Heat shrink tubing 1/2" to 1/4"	McMaster.com	7478K94	1	Pack	\$9.92	\$9.92
Heat shrink tubing 1/4" to 1/8"	McMaster.com	7496K435	1	Pack	\$10.96	\$10.96
Heat shrink tubing 1/8" to 1/16"	McMaster.com	7856K631	1	Pack	\$7.21	\$7.21
						\$68.61

Many McMaster part numbers are for *packages* of bolts or screws. If only one or two pieces are required and can be purchased individually through another supplier, there would be a considerable savings in the overall project cost.

**If purchased by the piece, the cost for this section would be approximately \$38.00**

**PARACHUTE PISTON**

Part	Vendor	Part Number	Quantity		Cost	Total
1/2" PVC union slip x slip	Home Depot	451132	1	Each	\$2.44	\$2.44
1/2" PVC cap	Home Depot	188166	1	Each	\$0.31	\$0.31
1/2" PVC coupling	Home Depot	188069	1	Each	\$0.25	\$0.25
1" PVC cap	Home Depot	188182	2	Each	\$0.51	\$1.02
1/2" PVC pipe x 2'	Home Depot	193682	1	Each	\$1.20	\$1.20
1" PVC pipe x 2'	Home Depot	193755	1	Each	\$2.72	\$2.72
PVC glue	Home Depot	798363	1	Each	\$4.97	\$4.97
Quad cross setion o-ring 13/16" ID x 1" OD	McMaster.com	90025K244	1	Pack	\$13.00	\$13.00
Delrin plastic disc 3" diameter x 1"	McMaster.com	9986K12	1	Each	\$15.65	\$15.65
Plumber's grease	Home Depot	678831	1	Each	\$2.36	\$2.36
Stranded single conductor wire - white	McMaster.com	7587K325	1	Roll	\$8.22	\$8.22
1/4-20 x 7/8" Steel button head socket cap screw	McMaster.com	91255A541	1	Pack	\$7.75	\$7.75
Nickel Chromium wire 32 AWG 1/8 lb. Spool	McMaster.com	8880K83	1	Spool	\$21.08	\$21.08
Polyethylene 1/2" square foam tape	McMaster.com	75785T11	1	Pack	\$4.08	\$4.08
1/4-20 Nylon insert hex locknuts	McMaster.com	97135A210	1	Pack	\$3.28	\$3.28
5 lbs. Potassium Nitrate - Kno3	Various	N/A	1	Each	\$10.00	\$10.00
2 lbs. Powdered sugar	Various	N/A	1	Each	\$2.50	\$2.50
						\$88.33

Many McMaster part numbers are for *packages* of bolts or screws. If only one or two pieces are required and can be purchased individually through another supplier, there would be a considerable savings in the overall project cost.

**If purchased by the piece, the cost for this section would be approximately \$62.00**

Some of the parts used in this section are duplicated in other sections.

**PARACHUTE AND PARACHUTE RIGGING**

Part	Vendor	Part Number	Quantity		Cost	Total
Double braided polyester rope 1/4" diameter 400#	McMaster.com	3789T312	1	Roll	\$22.27	\$22.27
Steel threaded connector 3/16" diameter 600#	McMaster.com	8947T15	2	Each	\$1.15	\$2.30
Double pinch steel hose clamp 5/16" to 7/16"	McMaster.com	6541K51	1	Pack	\$8.03	\$8.03
Straight jaw installation pincer	McMaster.com	6541K67	1	Each	\$22.81	\$22.81
Polyoefin heat shrink tubing 3/4" to 3/8" - black	McMaster.com	7496K19	1	Pack	\$18.48	\$18.48
Buna-N o-ring 3/8" ID x 1/2" OD	McMaster.com	2418T118	1	Pack	\$9.90	\$9.90
Natural latex rubber bands #14	McMaster.com	12205T52	1	Pack	\$6.96	\$6.96
60" White surplus parachute	Aerocon.com	P60WHITE	1	Each	\$12.00	\$12.00
						\$102.75

Many McMaster part numbers are for *packages* of bolts or screws. If only one or two pieces are required and can be purchased individually through another supplier, there would be a considerable savings in the overall project cost.

**If purchased by the piece, the cost for this section would be approximately \$52.00**

**ASSEMBLING THE UPPER BODY SECTION**

Part	Vendor	Part Number	Quantity		Cost	Total
3/4" x 5/16" Foam weather stripping	Home Depot	518425	1	Roll	\$3.48	\$3.48
9 Volt battery	McMaster.com	71455K56	1	Each	\$2.69	\$2.69
1/4-20 x 5/8" Button head hex cap screw	McMaster.com	91255A539	1	Pack	\$14.40	\$14.40
Nylon cable ties 15"	McMaster.com	7130K572	1	Pack	\$10.55	\$10.55
						\$31.12

Many McMaster part numbers are for *packages* of bolts or screws. If only one or two pieces are required and can be purchased individually through another supplier, there would be a considerable savings in the overall project cost.

**If purchased by the piece, the cost for this section would be approximately \$12.00**

### NOZZLE AND ENGINE CASING

Part	Vendor	Part Number	Quantity		Cost	Total
Thick steel washer .906" ID 1.75" OD .17" thick	McMaster.com	98029A037	1	Pack	\$5.24	\$5.24
1/4-20 Brass threaded inserts	McMaster.com	92395A116	1	Pack	\$9.30	\$9.30
2" Schedule 40 PVC coupling	Home Depot	232750	2	Each	\$0.94	\$1.88
2" Schedule 40 PVC pipe x 10'	Home Depot	754826	1	Each	\$5.87	\$5.87
1/4-20 x 5/8" Steel button head hex screws	McMaster.com	91255A539	1	Pack	\$14.40	\$14.40
Hydraulic anchoring cement	McMaster.com	7569T92	1	Box	\$8.17	\$8.17
						\$44.86

Many McMaster part numbers are for *packages* of bolts or screws. If only one or two pieces are required and can be purchased individually through another supplier, there would be a considerable savings in the overall project cost.

**If purchased by the piece, the cost for this section would be approximately \$21.00**

### ENGINE IGNITER

Part	Vendor	Part Number	Quantity		Cost	Total
Nickel Chromium wire 32 AWG 1/8 lb. Spool	McMaster.com	8880K83	1	Spool	\$21.08	\$21.08
1" PVC pipe x 2'	Home Depot	254977	1	Each	\$1.67	\$1.67
Stranded single conductor wire - white	McMaster.com	7587K325	1	Roll	\$8.22	\$8.22
Nylon cable ties 4"	McMaster.com	7130K52	1	Pack	\$2.25	\$2.25
5 lbs. Potassium Nitrate - Kno3	Various	N/A	1	Each	\$10.00	\$10.00
2 lbs. Powdered sugar	Various	N/A	1	Each	\$2.50	\$2.50
						\$33.22

Many McMaster part numbers are for *packages* of bolts or screws. If only one or two pieces are required and can be purchased individually through another supplier, there would be a considerable savings in the overall project cost.

**If purchased by the piece, the cost for this section would be approximately \$3.00**

Some of the parts used in this section are duplicated in other sections.

### MAKING AND CASTING THE FUEL

Part	Vendor	Part Number	Quantity		Cost	Total
1" PVC pipe x 2'	Home Depot	254977	1	Each	\$1.67	\$1.67
2" Schedule 40 PVC coupling	Home Depot	232750	1	Each	\$0.94	\$0.94
PVC glue	Home Depot	798363	1	Each	\$4.97	\$4.97
2" x 1" PVC slip bushing	Home Depot	544404	1	Each	\$0.96	\$0.96
1" x 6' Aluminum rod - alloy 6061	McMaster.com	8974K37	1	Each	\$31.07	\$31.07
5 lbs. Potassium Nitrate - Kno3	Various	N/A	1	Each	\$10.00	\$10.00
2 lbs. Powdered sugar	Various	N/A	1	Each	\$2.50	\$2.50
16 oz. Corn syrup	Various	N/A	1	Each	\$2.50	\$2.50
WD-40 Lubricant - 16 oz. Aerosol	McMaster.com	1347K17	1	Each	\$6.15	\$6.15
						\$60.76

Many of the parts in this section only need to be purchased once. Subsequent engines will therefore be much less expensive.

Some of the parts used in this section are duplicated in other sections.

### INSTALLING THE IGNITER, SMOKE ELEMENT AND END CAP

Part	Vendor	Part Number	Quantity		Cost	Total
2" Schedule 40 PVC cap	Home Depot	232777	1	Each	\$1.21	\$1.21
PVC glue	Home Depot	798363	1	Each	\$4.97	\$4.97
2" x 1" PVC slip bushing	Home Depot	544404	1	Each	\$0.96	\$0.96
1/4-20 x 1" Button head hex screw	McMaster.com	91255A542	1	Pack	\$8.69	\$8.69
5 lbs. Potassium Nitrate - Kno3	Various	N/A	1	Each	\$10.00	\$10.00
West Systems 105-A epoxy resin	McMaster.com	7480A41	1	Each	\$38.90	\$38.90
West Systems 205-A fast epoxy hardener	McMaster.com	7480A42	1	Each	\$19.57	\$19.57
Vinyl cap with dome top	McMaster.com	9343K59	1	Pack	\$6.58	\$6.58
						\$90.88

Many McMaster part numbers are for *packages* of bolts or screws. If only one or two pieces are required and can be purchased individually through another supplier, there would be a considerable savings in the overall project cost.

**If purchased by the piece, the cost for this section would be approximately \$11.00**

Some of the parts used in this section are duplicated in other sections.

**ASSEMBLING THE UPPER AND LOWER BODY SECTIONS**

Part	Vendor	Part Number	Quantity		Cost	Total
1/4" ID 1/2" OD x 1/8" Nylon spacer	McMaster.com	94639A567	1	Pack	\$7.58	\$7.58
1/4" ID 1/2" OD x 3/8" Nylon spacer	McMaster.com	94639A570	1	Pack	\$8.87	\$8.87
1/4-20 x 5/8" Button head hex screw	McMaster.com	91255A539	1	Pack	\$14.40	\$14.40
1/4-20 x 1" Button head hex screw	McMaster.com	91255A542	1	Pack	\$8.69	\$8.69
1/4" x 1 1/4" Steel fender washer	McMaster.com	91090A109	1	Pack	\$5.85	\$5.85
						\$45.39

Many McMaster part numbers are for *packages* of bolts or screws. If only one or two pieces are required and can be purchased individually through another supplier, there would be a considerable savings in the overall project cost.

**If purchased *by the piece*, the cost for this section would be approximately \$5.00**

Some of the parts used in this section are duplicated in other sections.