

Suggested Online Supplier		Fasteners (Screws, Bolts, Nuts)		Quantity Required
Supplier Name	Part Number	Description	Size	
Zoro.com	G2210117	Flat Washer	#10 X 9/16" OD	12
Zoro.com	G0791034	Lock Nut	#10-24	33
Zoro.com	G2507102	Phillips Screw	#10-24 x 1/2" length	10
Zoro.com	G1080116	Phillips Screw	#10-24 x 1 1/2" length	4
Zoro.com	G9977667	Phillips Screw	#10-24 x 2" length	19
Zoro.com	G0791944	Hex Nut	1/4" - 20NC	34
Zoro.com	G9906158	Flat Washer	1/4" X 5/8" - 0.065" thick	64
Zoro.com	G5702417	Flat Washer	1/4" X 5/8" - 0.188" thick	8
Zoro.com	G0530004	Hex Bolt	1/4" - 20NC X 1 1/2" length	4
Zoro.com	G5343213	Hex Bolt	1/4" - 20NC X 2" length	12
Zoro.com	G5355314	Hex Bolt	1/4" - 20NC X 2 1/2" length	6
Zoro.com	G5342836	Hex Bolt	1/4" - 20NC X 3" length	8
Zoro.com	G3338036	Hex Nut	3/8" - 16NC	6
Zoro.com	G3547022	Flat Washer	3/8" X 13/16"OD - 0.065" thick	5
Zoro.com	G6171356	Flat Washer	3/8" X 7/8" OD - 0.125" thick	6
Zoro.com	G5328626	Hex Bolt	3/8" - 16NC X 3 1/2" length	3
Zoro.com	G3319541	Jam Nut	1/2" -13NC X 21/64" height	2
Zoro.com	G0717805	Hex Nut	1/2" -13NC X 7/16" height	2
Zoro.com	G9906097	Flat Washer	1/2" X 1 1/2" OD - 0.095" thick	4
Zoro.com	G5345252	Hex Bolt	1/2" -13NC X 6" length	1
Zoro.com	G2168853	Wood Screw	#8 x 2-1/2 in	6
Zoro.com	G2813575	Wood Screw	#6 x 1 in	2
Amazon.com	B0C2Z4L3S6	Cable Ties	Asorted Sizes	as required

Suggested Online Supplier		Specialty Hardware (bearings, couplings, braces)		Quantity Required
Supplier Name	Part Number	Description	Size	
Zoro.com	G4205205	Flanged Bearing	3/8" bore X 5/8" OD - 1/2"length	6
Zoro.com	G3930683	Flanged Bearing	1/2" bore X 5/8" OD - 1/2"length	2
Amazon.com	NTA613 (+2 TRA)	Thrust Needle Bearing	3/8" bore X 13/16" OD	6
Amazon.com	NTA815 (+2 TWA)	Thrust Needle Bearing	1/2" bore X 15/16" OD	2
Zoro.com	G2379991	Corner Brace	3/4" W X 2 1/2" L	4
Amazon.com	CY-25A	Roller Ball Bearing	1", 400LB Capacity	2
Amazon.com	B07S8XJT4D	Flexible Coupling	6mm to 8mm	4

Suggested Supplier	Raw Material for Fabricated Parts		Total Length required (inches)
	Description	Size	
Metalsdepot.com	A36 Steel	Flat Bar 1" X 0.125" Thick	74.0
Metalsdepot.com	A36 Steel	Flat Bar 2" X 0.125" Thick	2.0
Metalsdepot.com	A36 Steel	Flat Bar 3" X 0.125" Thick	5.0
Metalsdepot.com	A569 Steel	Flat Bar 3/4" X 0.0625" Thick	21.0
Metalsdepot.com	A500 Steel	Rectangle Tube 2" X 1" X 0.120" Wall	12.0
Metalsdepot.com	A500 Steel	Square Tube 1" X 1" X 0.120 Wall	12.0
Metalsdepot.com	A653 Steel	Plate 20GA - 12" Wide	6.0
Your local Home Improvement store	Wood	Framing Stud - 2" X 2"	40.0
Your local Home Improvement store	Wood	Framing Stud - 2" X 3"	71.0
Your local Home Improvement store	Wood	Framing Stud - 2" X 4"	96.0
Your local Home Improvement store	Wood	Framing Stud - 2" X 8"	96.0
Your local Home Improvement store	Sheet Metal	GVL0108 Metal Plate 24" X 36"	1.0

Suggested Online Supplier		Control Board Electronics and Harness Components	Quantity Required
Supplier Name	Part Number		
Amazon.com	BTS7960	BTS7960 - 43A H-BRIDGE	4
Adafruit.com	3677	Adafruit ItsyBitsy 32u4 - 5V 16MHz	1
Amazon.com	B0BWTFN9WF	I2C (IIC) 1602 LCD Display Module 16x02	1
Amazon.com	B08R6337QY	5V Regulator 3A Output - 4.5V-24V Input	1
Amazon.com	B07FYFTHWJ	16-Bit SEGA Controller 6 buttons	1
Amazon.com	B00MCK7JMS	10K (B10K) Potentiometer	4
Amazon.com	F0.25AL250V	50mA 250V Quick Fast Blow Glass Tube Fuse 5x20mm	2
Amazon.com	B01CN8KWRC	Screw Terminal Strip - 6 Positions, 600V 15A	1
Amazon.com	B0BRQYKTVL	Connector Blocks - 3P Shorting Strip	2
Amazon.com	B0899WR671	ATO Fuse - 20A	1
Amazon.com	LAY37	Emergency E Stop Switch 22mm /30mm Latching	1
Amazon.com	IN4004	1N4004 Rectifier Diode 1 A 400 V	8
Amazon.com	E6P004	1K ohm Resistor 1/4w (0.25 Watt) ±1%	7
Amazon.com	E6P003	560 ohm Resistor 1/4w (0.25 Watt) ±1%	2
Amazon.com	B0BZDCGJ32	JST-XH 2.54mm Connector - Male 3 pin (XH-3P-M)	4
Amazon.com	B0BZDCGJ32	JST-XH 2.54mm Connector - Male 4 pin (XH-4P-M)	1
Amazon.com	B01461DQ6S	Right Angle Single Row 40-pin 2.54mm Male Header	1
Amazon.com	B08CZ86GSJ	1X14 Single Row 14 Pins PCB Socket Female Header 2.54mm	2
Amazon.com	B0B185LW97	1X3 Single Row 3 Pins PCB Socket Female Header 2.54mm	1
Amazon.com	B0009YEZ6S	2x4 Pins 2.54mm Pitch Straight Connector Pin IDC Box Headers	4
Amazon.com	KF301-2P	2-Pin Screw Terminal Block Connector 5.08mm PCB Mount	3
Amazon.com	B00C57Y7E6	DB9 Male to PCB Mount - Right Angle	1
Amazon.com	ZCDZ005	5mm Yellow Led Diode	2
Amazon.com	B09CKXHS1S	PCB Fuse Holder - for 5X20mm Glass Fuse	2
Amazon.com	B0BZDCGJ32	JST-XH 2.54mm Connector - Female 3 pin (XH-3P-F)	4
Amazon.com	B0BZDCGJ32	JST-XH 2.54mm Connector - Female 5 pin (XH-5P-F)	4
Amazon.com	B0BZDCGJ32	JST-XH 2.54mm Female Terminal	24
Amazon.com	B07H26FWBK	18 AWG Insulated Ferrules	18
Amazon.com	B089F7GMK1	22-16AWG Electrical Female/Male Spade Connectors	8
Amazon.com	B01B1DL40A	Fork Crimp Terminal 14-16AWG	4
Amazon.com	B01B1753K2	Fork Crimp Terminal 16-22AWG	11
Amazon.com	B088RDY284	14 AWG - 2 Conductor 12/24Vdc Electrical Wire	3 ft
Amazon.com	B0BRB1MJKL	18 AWG - 2 Conductor 12/24Vdc Electrical Wire	24 ft
Amazon.com	B08JTKN4M	22 AWG - 3 Conductor 12/24Vdc Electrical Wire	26 ft
Amazon.com	NI-FH01	Inline Fuse Holder ATO - 14AWG	1
Amazon.com	B06XCX7WRV	16-14AWG Insulated Butt Splice Connectors	1
Amazon.com	B07Q2KSYSH	JST-XH 2.54mm Female to Female Harness 100mm - 4 pin	1
Amazon.com	B07FKLHWT7	Flat Ribon Cable Female to Female 300mm - 8-pin (2X4)	4
Amazon.com	X2019051410	M3 X 30mm + 6mm Nylon Plastic Hexagon Standoff	24
Amazon.com	B071XP7K7Z	M3 X 6mm Nylon Machine Screw	24
Amazon.com	B0129BDGW6	M3 Nylon Hex Nut	24
Amazon.com	B0B6HWFQ2N	M4 x 10mm Metal Machine Screw and Nut	2

Suggested Online Supplier		Power and Electrical Components	Quantity Required
Supplier Name	Part Number		
Amazon.com	B07BQB7FH5	3-Wire Appliance Power Cord - 9ft, 16AWG	1
Amazon.com	B07TZMMZ66	12Vdc Power Supply - 30A / 360W	1
Amazon.com	L11TGF1000NB200-T-1	Linear Actuator 8" Stroke - 12Vdc / 1000N	3
Amazon.com	L11TGF900NB100-T-1	Linear Actuator 4" Stroke - 12Vdc / 1000N	1