The Competition - Kit Parts Checklist

(by location)

Gray Container - Bearing Bag

 Part Name/Description	<u>Dimensions</u>	<u>Category</u>	Qty /Kit	Product Supplier
2 Bolt Self Aligning Flange	Fits 1/2" Bearing	Bearings	8	The Torrington Company
Pillow Block	1/2"	Bearings	2	The Torrington Company
Radial Ball Bearing With Spherical O.D.	1/2" I.D., Self Locking Collar	Bearings	4	The Torrington Company
Roller Clutch	3/8" I.D.	Bearings	2	The Torrington Company
Single Row Radial Flanged Ball Bearing	1/4" I.D.	Bearings	4	The Torrington Company
Single Row Radial Flanged Ball Bearing	3/8" I.D.	Bearings	4	The Torrington Company

Gray Container - Hardware Bag

$\sqrt{}$	Part Name/Description	<u>Dimensions</u>	Category	Qty /Kit	Product Supplier
	5 Minute Epoxy Gel	Resealable 1 oz. Dual Syringe	Fasteners	1	Kaman Industrial Technologies
	Compression Spring	0.600" O.D. x 3.5 " Long	Springs	2	Associated Spring Raymond
	Constant Force Spring, Large	2.26" I.D.	Springs	2	Associated Spring Raymond
	Constant Force Spring, Medium	0.85" I.D.	Springs	2	Associated Spring Raymond
	Constant Force Spring, Small	0.34" I.D.	Springs	2	Associated Spring Raymond
	Double Magnet Cabinet Catch		Small Parts	1	Stanley Hardware
	Extension Spring	0.500" O.D. x 2.500" Long	Springs	2	Associated Spring Raymond
	Flat Washers	1/4" I.D., 7/8" O.D.	Small Parts	4	Fastenal Company
	Flexible Shaft Coupling	Black	Small Parts	2	DEKA
	Folding Table Brace	9-1/2" Brass plated	Small Parts	1	Stanley Hardware
	Gate Latch	Steel/Zinc Plated	Small Parts	1	Stanley Hardware
	Helical Plastic Wire Wrap	1/4" Ø x 24"	Fasteners	1	Tyton Hellermann
	Hex Nuts	1/4" I.D., 20 Pitch Coarse	Small Parts	8	Fastenal Company
	Magnet	1/4-20 Plastic Thread	Small Parts	4	Honeywell - Microswitch
	Pivot	5/16" Ø	Small Parts	2	Stanley Hardware
	Pulley With Fixed Eye	1" Ø, For 5/16" Rope	Sprockets & Pulleys	3	Stanley Hardware
	Roller Guide	7/8" Ø x 1/4" Wheel	Small Parts	2	Stanley Hardware
	Screen Door Catch	Zinc-Plated	Small Parts	1	Stanley Hardware
	Snugger	Spring With Plastic Guide	Springs	2	Stanley Hardware
	Spring Loaded Hinge	4" x 4", 30 in/lb Maximum	Springs	2	Stanley Hardware
	Torsion Spring, Left Hand	210 Degrees, 0.500" Dia	Springs	1	Associated Spring Raymond
	Torsion Spring, Right Hand	210 Degrees, 0.500" Dia	Springs	1	Associated Spring Raymond

Gray Container - Loose

 Part Name/Description	<u>Dimensions</u>	<u>Category</u>	Qty /Kit	Product Supplier
1 Conductor Wire	10', #6 AWG, Black	Control System	1	General Cable Company Inc.
1 Conductor Wire	10', #6 AWG, Red	Control System	1	General Cable Company Inc.
1 Conductor Wire	35', #10 AWG, Black	Control System	1	General Cable Company Inc.
1 Conductor Wire	35', #10 AWG, Red	Control System	1	General Cable Company Inc.
2 Conductor Jacketed Wire	30', #24 AWG	Control System	1	General Cable Company Inc.
2 Conductor Jacketed Wire	35', #16 AWG	Control System	1	General Cable Company Inc.
3 Conductor Shielded Wire	30', #24 AWG	Control System	1	General Cable Company Inc.
Aluminum Plate	1/4" x 3" x 12"	Sheets & Boards	1	Cohen Steel Supply Inc.
Aluminum Sheet	1/16" x 12" x 12"	Sheets & Boards	1	Cohen Steel Supply Inc.
Carpet Sample	12" x 12", 20 oz., Closed Loop	Other	1	FIRST
Channel For Tape Drive	28" Long	Small Parts	4	Delphi Interior and Lighting
Co-Polymer Gutter Guard	6" x 24"	Other	1	Home Depot
Drill Housing, Right and Left Half	Holds Motor, Gearbox, Battery	Motors & Pumps	3	Emerson Electric
Fisher-Price 10 Web Jeep Driver	Black	Motors & Pumps	2	Fisher-Price, Inc.

The Competition - Kit Parts Checklist (by location)

Fisher-Price Axle	7/16"∅ x 26"	Motors & Pumps	1	Fisher-Price, Inc.
Fisher-Price Motor/Gearbox	two 12 Vdc motors, switches	Motors & Pumps	1	Fisher-Price, Inc.
Flexible Motor Shaft	13.5" Long, Fits Seat Motor	Rods & Shafts	2	Grand Rapids Controls
Folding Table Leg Brace, Left Hand	Heavy Duty Leg Brace	Other	1	Stanley Hardware
Folding Table Leg Brace, Right Hand	Heavy Duty Leg Brace	Other	1	Stanley Hardware
Globe Motor with Drive Assembly	12Vdc	Motors & Pumps	2	Globe Motors
Ground Plane Assembly	12" x 12" with BNC Bulkhead	Control System	1	FIRST
Kee Industrial Caster Catalog		Documentation	1	Kee Industrial Products
Kee Klamp Pipe Fitting Catalog		Documentation	1	Kee Industrial Products
Latex Tubing	1/4" I.D., 3/8" O.D., 5'	Springs	1	Gulf South Medical Supply
LDPE Rod	1" Ø x 24"	Rods & Shafts	1	Plastic Supply Inc.
Lead Screw	18.75" Long	Rods & Shafts	1	Kerk Motion Products, Inc.
Lower Channel for Seat Positioning Unit	2.25" x 17" Channel	Small Parts	1	Lear Corporation
Quick-Disconnect Power Connector	#10 AWG Red/Black Wire	Control System	1	Anderson Power Products
Quick-Disconnect Power Connector	#6 AWG Red/Black Wire	Control System	2	Anderson Power Products
Rubber Sheet, Red	1/16" x 6" x 6"	Sheets & Boards	1	FIRST
Seat Motor	12 Vdc	Motors & Pumps	1	ITT Automotive
Van Door Motor - Bosch	12 Vdc, 75 RPM	Motors & Pumps	1	Delphi Interior and Lighting
Van Door Motor - Tiagene	12 Vdc, 75 RPM	Motors & Pumps	1	Delphi Interior and Lighting
Wheelchair Wheel	6" Ø, 5/16" I.D. Bearings, 1-1/2"	Small Parts	2	Skyway Recreation Products
Wheelchair Wheel	8" Ø, 5/16" I.D. Bearings, 1-1/2"	Small Parts	2	Skyway Recreation Products
Wiring Harness For Receiver Relay Power	1', #10 AWG, Red and Black	Control System	1	Nova Biomedical/Amp Inc.
Wiring Harness For Seat Motor	5', #16 AWG	Control System	1	Nova Biomedical/Pioneer
Wiring Harness For Window Motor	5', #16 AWG	Control System	2	Nova Biomedical/Pioneer
Yaw Rate Sensor		Control System	2	BEI Systron Donner

1	V	Part Name/Description	<u>Dimensions</u>	Category	Qty /Kit	Product Supplier
		Flange Nut for Seat Positioning Unit	M6 x 1.0 Pitch	Small Parts	4	Lear Corporation
		Hex Head Bolt for Seat Positioning Unit	M6 x 1.0 Pitch x 30mm	Small Parts	2	Lear Corporation
		Horiz. Act. for Seat Positioning Unit, Left	Natural Color	Small Parts	1	Lear Corporation
		Upper Channel for Seat Positioning Unit	1.3125" x 9.875" Channel with	Small Parts	1	Lear Corporation

Gray Container - Tube

 Part Name/Description	<u>Dimensions</u>	<u>Category</u>	Qty /Kit	Product Supplier
Aluminum Rod	1/2" Ø x 24"	Rods & Shafts	2	Cohen Steel Supply Inc.
Brazing Rod	1/16" Ø x 18"	Rods & Shafts	1	FIRST
Brazing Rod	1/8" Ø x 18"	Rods & Shafts	1	FIRST
Delrin (Acetal) Rod	1/4" Ø x 20"	Rods & Shafts	1	Plastic Supply
Drill Rod	1/2" Ø x 18"	Rods & Shafts	2	Cohen Steel Supply Inc.
Drill Rod	1/4" Ø x 18"	Rods & Shafts	2	Cohen Steel Supply Inc.
Drill Rod	3/8" Ø x 18"	Rods & Shafts	2	Cohen Steel Supply Inc.
Drill Rod	5/16" Ø x 18"	Rods & Shafts	2	Cohen Steel Supply Inc.
Threaded Rod	1/4" Ø x 18", 20 Pitch Coarse	Rods & Shafts	1	FIRST

Gray Container - Window Lift Mechanism Bag

 Part Name/Description	<u>Dimensions</u>	Category	Qty /Kit	Product Supplier
Window Lift Bracket, Left Hand	Color Natural	Small Parts	1	Delphi Interior and Lighting
Window Lift Bracket, Right Hand	Color Natural	Small Parts	1	Delphi Interior and Lighting
Window Lift Gear	Use with Window Tape,	Small Parts	2	Delphi Interior and Lighting
Window Lift Guide Drive	Use with Guide, Channel,	Small Parts	8	Delphi Interior and Lighting

The Competition - Kit Parts Checklist (by location)

Window Lift Guide, Left Hand	Attach to Triangular Mount,	Small Parts	1	Delphi Interior and Lighting
Window Lift Guide, Right Hand	Attach to Triangular Mount,	Small Parts	1	Delphi Interior and Lighting
Window Lift Mechanism Tape	16' Length	Small Parts	1	Dymetrol Company, Inc.
Window Lift Mechanism Washer	Fits over Flanged Bushing	Control System	2	Fastenal Company
Window Lift Triangular Mount	White, Window Lift Mechanism	Small Parts	2	St. Clair Plastics Company
Window Motor Bushing	5/16" I.D. x 1/2" Long	Bearings	2	Stock Drive Products
Window Motor, Left Hand	12 Vdc, 12 Tooth Pinion, 16	Motors & Pumps	1	ITT Automotive
Window Motor, Right Hand	12 Vdc, 12 Tooth Pinion, 16	Motors & Pumps	1	ITT Automotive

Green Container - Drill Bag

٦	1	Part Name/Description	<u>Dimensions</u>	<u>Category</u>	Qty /Kit	Product Supplier
		Drill Drive Assembly	225 in. lbs Maximum Torque	Motors & Pumps	2	S-B Power Tool Company
		Drill Housing Cover	w/ Shift Lever	Small Parts	2	S-B Power Tool
		Drill Housing Screws	#4 x 3/4, Pan Head - Phillips	Fasteners	10	Fastenal Company
		Drill Motor	12 Vdc	Motors & Pumps	2	S-B Power Tool

Green Container - Electronics Bag

Part Name/Description	<u>Dimensions</u>	<u>Category</u>	Qty /Kit	Product Supplier
2 Pin Logic Power Connector	Black, European Style Header	Control System	1	Thomas & Betts Corp.
25 Pin Male D-Sub Solder Cup Connector	25 Pin Male D-Sub Solder Cup	Control System	2	AMP Incorporated
8 Pin Relay Output Connector	Black, 8 Position European	Control System	2	Thomas & Betts Corp.
Antenna, Helical UHF	3" Long	Control System	2	Motorola
Attenuator		Control System	1	Mini-Circuit
BASIC Stamp Programming Disk	3.5" HD Floppy	Documentation	1	Parallax, Inc.
Battery Fuse	60 A, Maxi-Fuse	Control System	1	Bussmann
Battery Fuse Holder	Maxi-Fuse, 6 AWG leads	Control System	1	Bussmann
BNC Bulkhead Connector	BNC Male to Male, insulated	Control System	1	Brevan Electronics
BNC Coax Cable	6 ' BNC Female to Female	Control System	2	Brevan Electronics
BNC Right Angle Connector	BNC Male to Female	Control System	1	Brevan Electronics
Cable Tie Mounting Base	Self-Adhesive, #8 Holes	Fasteners	10	Thomas & Betts Corp.
Capacitor, Drive Motor Noise Suppression	0.1 µF, 50 V Ceramic Molded	Motors & Pumps	4	KEMET Electronics
Circuit Breaker For Motors	30 amp,12 volt, Auto-Resetting	Control System	12	Snap-Action, Inc.
Control Program Source Code	3.5" HD Floppy	Documentation	1	FIRST
Diode	1 Amp, Maximum	Control System	2	Digi-Key Corporation
Heat Shrink Tubing	1/4"Ø x 3", Black, 2:1 Shrink	Control System	1	Raychem Corporation
Heat Shrink Tubing	1/8"Ø x 4", Black, 2:1 Shrink	Control System	1	Raychem Corporation
Heat Shrink Tubing	3/4"Ø x 3", Black, 2:1 Shrink	Control System	1	Raychem Corporation
Heat Shrink Tubing	3/8"Ø x 5", Black, 2:1 Shrink	Control System	1	Raychem Corporation
Knob for Potentiometer	1" Hexagon, Fits 1/4" Shaft	Control System	2	Radio Shack
Latching Pushbutton Switch		Control System	2	Honeywell - Microswitch
LED, Panel Mount	Amber, 5V	Control System	1	Chicago Miniature Lamp, Inc
LED, Panel Mount	Green, 12V	Control System	4	Chicago Miniature Lamp, Inc
LED, Panel Mount	Red, 12V	Control System	4	Chicago Miniature Lamp, Inc
Limit Switch		Control System	10	Honeywell - Microswitch
Momentary Rocker Switch		Control System	8	Honeywell - Microswitch
Potentiometer	100KΩ, Linear	Control System	6	Bourns, Inc.
Pushbutton Switch Cover	Red	Control System	2	Honeywell - Microswitch
Reed Switch	Normally Open, Magnet	Control System	4	CP Clare
Ring Connector	# 6 Awg	Control System	7	
Rocker Switch Cover	Blue	Control System	1	Honeywell - Microswitch

The Competition - Kit Parts Checklist

(by location)

Rocker Switch Cover	Green	Control System	1	Honeywell - Microswitch
Rocker Switch Cover	Red	Control System	1	Honeywell - Microswitch
Rocker Switch Cover	Split Red/Green	Control System	4	Honeywell - Microswitch
Rocker Switch Cover	Yellow	Control System	1	Honeywell - Microswitch
Servo	42 oz. in. Peak, 0.19 s/60°	Control System	2	Hitec RCD, Inc.
Servo Extension Cable	Hitec/JR-style, 36" Long	Control System	4	Hitec RCD, Inc.
Servo Y Cable	Hitec/JR-style, 24" Long	Control System	2	Hitec RCD, Inc.
Spade Connector	Female, 12-10 AWG, Yellow	Control System	10	Thomas & Betts Corp.
Spade Connector	Female, 16-14 AWG, Blue	Control System	10	Thomas & Betts Corp.
Spade Connector	Female, 22-18 AWG, Red	Control System	10	Thomas & Betts Corp.
Spade Connector	Male, 12-10 AWG, Yellow	Control System	10	Thomas & Betts Corp.
Spade Connector	Male, 16-14 AWG, Blue	Control System	10	Thomas & Betts Corp.
Spade Connector	Male, 22-18 AWG, Red	Control System	10	Thomas & Betts Corp.
Terminal Strip	Tubular, Double Screw	Control System	1	Thomas & Betts Corp.
Tether Adaptor	Black DB9 Female-Female	Control System	1	Brevan Electronics
Thermo-Plastic Shield for 25 Pin Connector	fits DB25 Connector	Control System	1	AMP Incorporated
Wire Nut	Wire Nut for Wire Sizes #18-10	Control System	10	Thomas & Betts Corp.

Green Container - Loose

 Part Name/Description	<u>Dimensions</u>	<u>Category</u>	Qty /Kit	Product Supplier
25 Pin Cable	DB25 Male to Female, 6',	Control System	1	Brevan Electronics
9 Pin Cable	DB9 Male to Female, 6',	Control System	3	Brevan Electronics
Air Pump	1/8HP, 12Vdc, 30psi, 1.3 CFM	Pneumatics	1	Gast Manufacturing, Inc.
BASIC Stamp Programming Manual		Documentation	1	Parallax, Inc.
Battery Charger	4 amp, for SLA Battery	Control System	1	Xenotronix or Associated
Battery, Sealed Lead Acid	12 Vdc, 17 Amp Hours	Control System	2	CSB Battery of America Corp
Caster, w/ Bolt Hole Mount	165 Pounds, swivel	Small Parts	2	Kee Industrial Products
Crimping Tool for Spade Connectors	Orange/Black Color	Tool	1	Thomas & Betts Corp.
Drill Housing	T-Handle Style Grip, Left/Right	Motors & Pumps	2	S-B Power Tool
Flightstick Joystick	7" Cable with Male DB15	Control System	2	CH Products
Muffin Fan	12 Vdc	Control System	1	EBM Industries
Numatrol Tubing	1/4" O.D., 1/8" I.D., 2'	Pneumatics	1	Numatics, Inc.
Operation & Maintenance Manual for Pump	For the Pneumatic Pump	Documentation	1	Gast Manufacturing, Inc.
Pneumatic Training Manual CD		Documentation	1	SMC Pneumatics, Inc.
Power Supply	7.5 Vdc, 1.0 Amp max	Control System	1	Golden Pacific Electronics, Inc.
Project Box	Black	Control System	1	Serpac
Receiver	2.25" x 5.75" x 8.75"	Control System	1	FIRST
Speed Controller		Control System	2	Innovation FIRST
Speed Controller	7.2 - 12 Vdc, Reversing	Control System	2	Tekin Electronics, Inc.
Transmitter	1.75" x 5.50" 7.50"	Control System	1	FIRST
Volume Chamber		Pneumatics	1	SMC Pneumatics, Inc.

Green Container - Miscellaneous Bag

 Part Name/Description	<u>Dimensions</u>	Category	Qty /Kit	Product Supplier
9 - 15 Pin Cable	3' Long, DB9 F to HDB15 M	Control System	2	Brevan Electronics
Air Filter for the Pneumatic Pump	For the Pneumatic Pump	Pneumatics	1	Gast Manufacturing, Inc.
Cable Tie	11" x 0.14"	Fasteners	10	Thomas & Betts Corp.
Check Valve	1/8" Ø Barbs 75 psi max.,	Pneumatics	2	Air Logic
Drill Motor Mounting Flange Fastening	M4 x 5mm, Button Head 19	Fasteners	4	Fastenal Company
Fuse Panel	ATC, 6 fuseable, 12 unfused	Control System	2	Bussmann

The Competition - Kit Parts Checklist (by location)

	(by location)			
Kent™ Connector Fitting	1/8" - 1/8" Barb	Pneumatics	2	Value Plastics, Inc.
Optical Sensor	Miniature DC Sensor, Blue	Control System	2	Honeywell - Microswitch
Trantorque Coupling	3/8" I.D., 3/4" O.D.	Small Parts	2	Small Parts, Inc.
reen Container - Pneumat	ics Baq			
Part Name/Description	<u>Dimensions</u>	<u>Category</u>	Qty /Kit	Product Supplier
Air Cylinder	12" stroke, clevis/nose mount	Pneumatics	1	SMC Pneumatics, Inc.
Air Cylinder	5" stroke, clevis/nose mount	Pneumatics	2	SMC Pneumatics, Inc.
Barbed Fitting	Fitting for valves	Pneumatics	9	SMC Pneumatics, Inc.
Barbed Fitting	For pressure switch	Pneumatics	1	SMC Pneumatics, Inc.
Direct Valve	12 Vdc	Pneumatics	1	SMC Pneumatics, Inc.
Double Solenoid Valve	12 Vdc	Pneumatics	1	SMC Pneumatics, Inc.
One Touch Fitting	Fittings for cylinders	Pneumatics	8	SMC Pneumatics, Inc.
One Touch Fitting (mounted)	Fitting for Direct Valve	Pneumatics	2	SMC Pneumatics, Inc.
Polyurethane Tubing	4mm OD, Black, 10m Bundle	Pneumatics	1	SMC Pneumatics, Inc.
Pressure Switch	12 Vdc	Pneumatics	1	SMC Pneumatics, Inc.
Single Solenoid Valve	12 Vdc	Pneumatics	2	SMC Pneumatics, Inc.
ick Off Check Out				
Part Name/Description	<u>Dimensions</u>	Category	Qty /Kit	Product Supplier
RNet 9600sslm, Programmable	High Density DB15 Female	Control System	2	Motorola
ick Off Check Out - Docum	nentation			
Part Name/Description	<u>Dimensions</u>	Category	Qty /Kit	Product Supplier
Anderson Power Products Catalog	Catalog	Control System	1	Anderson Power Products
Cick Off Check Out - Velcro	Bag		l	
Part Name/Description	<u>Dimensions</u>	Category	Qty /Kit	Product Supplier
Velcro 1" Hook & Loop Tape	3' Length, Adhesive Backing	Fasteners	1	Velcro USA, Inc.
Velcro 1" One Wrap Tape	18" Lengths, Black	Fasteners	1	Velcro USA, Inc.
Velcio i Olie Wiap Tape		1		
Velcro 5/8" One Wrap Tape	Black	Fasteners	1	Velcro USA, Inc.

3 pin, 24 AWG x 12" cable

2

Control System

FIRST

Connector for Yaw Rate Sensor