

The 2002 FIRST Robotics Competition
TEAM UPDATE #4

Date: January 30, 2002

ADDITIONAL HARDWARE LIST & SMALL PARTS, INC.

Many of you have called asking if certain items are allowed or not. If it's on the additional hardware list and or can be purchased from Small Parts then it is allowed. Now we are understand that Small Parts is Out Of Stock on many items. If you wish to purchase something from Small Parts, but cannot, please find it locally, but remember, it must be exactly what you were originally ordering from Small Parts, Inc.

FED-EX

Regarding the Fed Ex air bills that were provided in the kit of parts. These are NOT transferable between teams no matter how many events you may be attending. Please do not trade these amongst other teams.

GOAL HANDLING

We have been flooded with questions regarding interaction with the goal. We have previously stated that we would allow a robot to push on the vertical surface of the stainless steel edge around the upper and lower plywood decks. We will also allow a robot to push on the lower surface (edge) of the stainless steel angle that surrounds the upper plywood deck with a surface/device/material angled at 15 degrees or more from the horizontal. This deviates from our initial thoughts. Caution is advised, however, because devices like this that damage the goal will be disallowed at the competition.

“SHIPPED KIT PARTS”

Many parts have shipped from FIRST and more are on the way. We apologize for the inconvenience, but if you have not received your shipment of parts, don't panic. They will arrive soon.

Reminder: For those of you that have last year's revolving light and battery connectors, please feel free to use them until the new parts arrive. The 2001 and 2002 parts are the same.

AUTODESK

Regarding the Autodesk Award for Visualization, we have done some testing and have found that rendering 30 seconds of animation uncompressed yields files larger than can be stored on a CDROM.

Because of this: We ask that FIRST animators use the Cinepak codec at 640 x 480 and 100% quality. This setting will yield good results and provide a standard of comparison for the teams.

RULES UPDATE

- Revise Figure 2.1.
 - Substitute Atwood (Chiaphua) Motor for Van Door Motor
 - Globe Motor should be 16AWG wire not 10.
 - Drill motor can use either a 20 AMP or a 30 AMP breaker. *30AMP is recommended.*
- The BELIMO Torque motor can be hooked to either a Speed Controller or Spike Relay Module.
- The following sentence has been appended to Rule C8.
 - C8. It is acceptable to use ribbon cable smaller than 24 AWG and not necessarily color-coded, to connect the 9 pin and 25 pin parts on the robot controller.
 - This rule change should allow for more convenient wiring between, for example, the custom circuit board and the sensor inputs. If using ribbon cable, please take care to protect it from physical abuse (straining, pinching, or sharp bending) or failure of the internal wires is likely.
 - Add the following item to Rule C12.
 - Pneumatic pump may be powered by a Speed Controller using a 20A or 30A breaker.

REPLACEMENT KIT PARTS AND SMALL PARTS AVAILABILITY AT EVENTS

This was copied from Section 1.3 The Robot

1.3.1 Design and Build Phase

FIRST has a limited supply of replacement parts available. If, during examination of components, a failure is determined due to misuse or incorrect wiring, in general, only one (1) additional unit will be supplied. FIRST reserves the right to refuse to provide replacements to teams that break the same part over and over.

FIRST will not provide replacement for parts that fail due to modification.

You must provide your Team number and daytime contact information when returning any broken part to FIRST for replacement. Unless otherwise specified, replacement parts shipped from FIRST will ship via 2nd day air within one business day of receipt of the non-functional part. Teams may opt for overnight shipment at their expense by requesting it, and providing their shipping company preference and account number, (UPS or FedEx, etc.) or by providing a credit card number. (Visa or MasterCard)

FIRST does not provide “back up” spare parts to teams. When possible, FIRST will provide teams with information on who to contact to obtain extra kit parts. However, due to the nature of how the Kit of Parts is assembled, there will be some kit items for which spares are simply not available. Teams wishing to obtain extra parts for use in robot development or to have on hand as backup should utilize regular retail channels or consult the supplier contact information in Appendix F. If contact information for a particular part supplier is not listed in the supplier contact information, then they are not prepared to supply parts directly to teams.

NOTE: Please do not contact parts suppliers if they are not listed in the supplier contact information.

1.3.2 FIRST Policy on Replacement of Kit Parts at event sites.

Many kit parts are no longer available as spares at any of the events. This is due to the continued increase in the number of teams as well as the difficulty in obtaining extras.

The following items will not be available at event sites:

The Entire Rod Container	Casters
CMT Bushings and Pulleys	6” and 8” Wheelchair Wheels
Bussmann Fuse Panel	

Batteries & chargers will NOT be available at any time at any event.

No more than 2 of each type of motor provided in the Kit of Parts will be given to any team at any event as a replacement. Please remember to use “Gracious Professionalism” when requesting new motors as FIRST does not have enough to provide for all teams at every event.

Loaner Control Systems at all events.

Teams are responsible for all Innovation First products required at events. If at any event a team needs to borrow any part of the Control System, a Credit Card number must be provided to ensure proper return of the items after the completion of the event.

All “loaner” items are available on a first-come first-served basis.

- Operator Interface
- Robot Controller
- Radio Modems
- AC Adapter for Operator Interface
- Speed Controllers (Victor 883)
- Relay Modules (Spike)

If the part is not returned at the end of the event, FIRST retains the right to bill the credit card number provided for the items borrowed.

Victor 884 Speed Controllers will NOT be available on site for replacement.

Small Parts, Inc.

Small Parts has graciously provided us with a certain number of smaller items to be used as spares at the events. Screws, washers, nuts, etc. This is a very limited supply of parts and nothing like they have provided in year's past. Please be prepared and try to plan accordingly.

INSPECTION CHECKLIST

Listed below is a DRAFT copy of the Inspection checklist that will be used during robot inspection at all the events. This is strictly a DRAFT only and may be changed before the events have begun. Please be prepared.

2002 FIRST ROBOTICS COMPETITION **DRAFT** INSPECTION CHECK LIST

Team # _____

Weight _____ (Includes battery) (≤ 130.0)

Size _____ Must fit freely in ready-to-run condition (30"x36"x60")

C.C Cost _____ (Custom circuit board)

PASS	
Initials	
DATE	
TIME	

MECHANICAL

	Team name and/or logo and number on 2 sides - 5" numerals 180 deg. apart.
	Changeable rotating light (Red & Blue) easily assessable, visible from 4 sides of robot and mounted upright.
	Wheels do not damage carpet - carpet check if questionable. (No Velcro on wheels)
	Meets Additional Hardware list requirements.
	No sharp objects that could harm people, damage balls or playing field.
	Maximum of 5' latex tubing allowed to launch balls.
	Springs only from Kit or SPI. Latex tubing use acceptable.
	No excess lubricants that could contaminate field or balls.
	The Robot Controller LED's are visible.
	No tape used as a fastener.
	No illegal modification of control system components.
	No loose wires or material to cause entanglement.
	Battery is secured and easily removable.

ELECTRICAL

	Only 1 battery on robot.
	Battery terminals must be insulated (electrical tape acceptable).
	60A circuit breaker in series with battery (RED lead).
	20 or 30A circuit breaker in series with each speed controller.
	20A circuit breaker (on all remaining components)
	All Fisher-Price, drill, Mabuchi and Globe motors on one Innovation First speed controller each.
	No more than one motor and 2 valves per relay module.
	No more than one motor per speed controller.
	Motor, pump or valve cannot be wired directly to junction block.
	Sensors wired to Robot Controller sensor port or custom circuit board only (no series connections with motors, etc).
	Proper wire color for constant polarity power distribution (red/white for positive, black for negative).
	#6 wire from battery to junction block or fuse panel (battery -> battery fuse -> junction block or fuse panel).
	#10 wire to speed controllers, van door motor, drill motor, Mabuchi Motor and Fisher-Price motors.
	#16 wire to Robot Controller logic power, valves, window motors, Globe motors, seat motors, Johnson motor, relays, large muffin fan, and rotating light.
	#24 wire to switches, PWM cables, sensors, potentiometers, small muffin fans, and LED's.
	No exposed electrical conductors.
	No wires in electrical contact with robot metal chassis.
	Proper use of electrical connectors and electrical tape.
	No fabricated terminal strips (off the shelf terminal strips allowed per Additional Hardware list).
	Team # set correctly on Robot Controller (power up RC via tether connection to check).
	Rotating light must be on a relay that comes on/off when control system is enabled/disabled (power up RC to check).
	Rotating light must be insulated from chassis and mounted on non-conductive surface..

PNEUMATICS

	All pneumatics parts are from the Kit / or from approved custom orders.
	No modified pneumatics components.
	No custom pneumatics components.
	All air from compressor goes through regulator before any valves, cylinders, etc.
	Regulator set to maximum of 60 psi.