THE 2000 FIRST ROBOTICS COMPETITION

TEAM UPDATE #8

Date: February 9, 2000

REMINDER

Just a reminder about Pit Rule P13: Whistles and blow horns are **not allowed** anywhere onsite at the FIRST Robotics Competition - this includes Regional Events and the National Championship.

STUDENT VOLUNTEERS NEEDED TO ASSIST PUBLIC RELATIONS EFFORTS AT NATIONAL

FIRST is looking for twelve student volunteers to assist with PR duties April 6, 7, and 8, at the FIRST Robotics Competition National Championship at Epcot. Student PR volunteers are needed to work morning or afternoon shifts all three days of the event. Duties will vary from assisting national media coordinators with clerical duties in the FIRST Media Tent, to escorting media and VIPs, and/or providing assistance at media platforms and stages.
If you've got the energy and if you're already going to Epcot with your team, you're just the person we're looking for. **To volunteer email sandra@usfirst.org**.

DISNEY RELEASE FORM

Now available on the FIRST website is the Disney Release Form. Please be advised that all participants that go to the FIRST Robotics Competition National Championship at Epcot must return this form.

DRILL INFORMATION

The following are the part numbers for the drill parts from S-B Power Tool Company. Their phone number was revised in Update #2 to (908)769-2457.

Part Name	Part Number
drill drive	2-606-200-065
drill motor	2-610-993-804
drill housing	2-610-910-446
drill house cover	2-605-510-130

Drive Assembly Output Screw thread: M10 x 0.1 Right Hand
Internal locking thread: M5 x 0.8 Left Hand

SMC UPDATE

Due to problems with shipping the pneumatics components, some teams may have received more than one kit. Teams are only allowed to use the quantities listed in the components list in Team Update #3. Any teams with additional kits or that do not plan to use the pneumatics components may turn them in to SMC at the first event attended.

AUTODESK UPDATE

3D Studio MAX information and assistance are available on our peer-to-peer 3D Studio MAX Online Customer Forum. To visit the 3D Studio MAX Forum, use the Kinetix Online Forum Directory at http://support.ktx.com/~max. You can also connect to this site from within 3D Studio MAX - choose Help menu > Connect To Support And Information.
The Discreet web site at http://www.ktx.com is a rich knowledge pool of free 3D Studio MAX information. To visit the 3DS MAX web pages from within 3DS MAX, choose Help menu > Connect To Support And Information. You will find links to 3D Studio MAX tutorials, plugins, and newsgroups.

Autodesk judging guidelines are now available in the Autodesk Update page on the FIRST website. (http://www.usfirst.org/2000comp/AutodeskUpdates/).

CORRECTIONS AND UPDATES TO THE MANUAL

Clarification to Rule GM21:
Under rule GM21, robot pulling will be allowed unless a robot is attached to the hanging bar.

RULES QUESTIONS & ANSWERS

Q197. What is the clearance under the bars under the goals? I remember reading that the measurement from the floor to the bottom of the bar was going to be 30", +/- 1". How close will the bar be positioned?
A197. That bar will be a nominal 30". What that means is we will measure it when setting up the field with a standard tape measure and will keep it as close to 30" as possible. The +/- 1" comes from the disclaimer on the blue print.

Q198. May we change our identification light to a smaller size?
A198. No, see rule M9.

Q199. What are the maximum dimensions allowed for the controls in the control are?
A199. The shelf in the Alliance Station is a nominal 1'x5' . It is okay to have controls tethered to the robot operators

Q200. May we laminate Formica to plywood?
A200. Using adhesive to laminate parts together is okay because adhesive is categorized as a fastener. Formica would have to be from SPI because it is not in the Kit of Parts or on the Additional Hardware List.

Q201. May we shorten output shaft on the van door motor?
A201. Yes. See Rule M19.

Q202. May we slice a section of a PVC fitting (tee or endcap), then glue this ring section to a PVC pipe of the same diameter to form a shaft collar ?
A202. Yes.

Q203. We are planning on taking our portable machine shop trailer to the Regional competitions and possibly Nationals. Is it legal (or considered "on site") to fabricate parts with our own equipment in our trailer, if we park it in the parking lot of the competitions? Also, we would let this equipment be available to other teams. We would probably "man" the trailer during "work times" so that other teams can use some of our equipment. We will have a drill press, band saw, and belt sander. We might have a mini-lathe and a mini-mill.
A203. Yes, we consider the parking lot to be "on site". Thank you for offering to share the shop with other teams. This is a great service to the FIRST community and we appreciate your generosity. Please note, though, that there is a liability issue that you should be aware of. Specifically, FIRST is not able to cover these shops in our site insurance, so we strongly recommend that you make sure that you are insured against any possible injury that might occur if you help someone in your shop.

Q204. Does the battery need to be mounted in the conventional upright orientation (terminals on top) or is the battery permitted to be mounted in another orientation, e.g. terminals down or to one of the sides?
A204. According to the manufacturer's spec sheet (see pages 114-115 of The Robot section of the manual), the battery "can be operated, stored, or charged in any position without leakage." FIRST does not require the batteries to be mounted in a specific orientation on the robot. However, we recommend that you design your battery mount to allow easy changeover of the batteries between matches, protect the battery from physical damage during matches, and avoid the possibility of short circuits across the battery terminals.

Q205. Are we allowed to use LED's (light emitting diodes) on our robot? More specifically, if we had a driver station that allowed the drivers to "assign" two different ends of a robot as the front....could we illuminate LED's at the end that the driver has chosen as the front. (so as to give them feedback as to which side is "front" and which is "back").

A205. There are LED's in the kit that may be used for this purpose. In theory, LED's above and beyond the amount provided in the kit could be used under the "non-functional decoration" rule. However, this application clearly has a function that could affect the outcome of the match, so the non-functional decoration rule would not apply.

Q206. Would it be permissible to use a pneumatic cylinder from the SMC kit on it's own as a means by which to provide mechanical resistance by inserting screws in the air holes? If so, would it be permissible to use Teflon on said screws?

A206. No. See Rule K4.

Q207. Would a rubber ring around the hole by which a cable exits our project box be permitted, perhaps as a fastener? If not, is there anything else that would be permitted?

A207. Yes, you may use a rubber ring. We do not limit the materials that may be used in constructing the interface for the operators.

Q208. Since switches of all sorts are now on the Additional Hardware List, would it be permissible to install a switch (capable of handling the current/voltage) between the 60A battery fuse and the rest of our components (namely the terminal blocks and fuse panels)? This switch would act as a kind of master cutoff switch and would allow us to quickly disconnect power to our robot without leaving power-disconnects dangling around.

A208. No. Switches may only be wired as described in the control system rules, which means they may only be used as inputs for the Operator Interface and/or Robot Controller. You should be able to pull your 60 AMP fuse to disable the rest of your components.

Q209. Is it legal to use T or 90 degree fittings to connect lengths of PVC or electrical conduit? If so, is cleaner and glue acceptable to use?

A209. Yes, we added pipe fittings to the Additional Hardware List as of Team Update #4. Cleaner is fine because it is just used to prepare the pipe and doesn't really become part of the robot, and PVC glue is an adhesive, which is listed under the "Fasteners" category on the Additional Hardware List.

Q210. Q/A #185 established that worm gears fall under "sprockets, gears & pulleys" and are therefore additional hardware. Would lead screws, such as those found on page 185 of the Small Parts catalog also fall under that Additional Hardware List? Would the nuts for the screws, found on the same page, be considered additional hardware?
A210. No. Lead screws are not sprockets, gears, or pulleys. Nuts for lead screws are not on the Additional Hardware List.

Q211. With respect to Q207, does this to mean that absolutely anything is fair game for use in operator's station, including no Small Parts budget restrictions?
A211. Yes, all materials are fair game. Having said that, we don't want you to build a control room on wheels. Please keep it to items that the robot operators can carry and set down on the shelf of the driver's station, or small items that rest on the floor (e.g. a box for foot operated inputs, but not a chair). The SPI budget is only for parts that are on the robot. See rule K1. Also see Q&A199.

Q212. Is the use of lubricants inside the robot permissible?
A212. Yes, as long as they are used to reduce friction within your robot. See Rules K1 and DA2.

Q213. May steel tubing of any size within the 2"x2"x1/4" steel angle specs be used? What if it is manufactured by welding two angles together?
A213. Purchased steel tubing does not qualify as steel angle, with respect to the Additional Hardware List. You are welcome to purchase steel angle and weld it together to form a square tube.

Q214. Is standard 5/32" square keystock (normally used to secure a keyed sprocket/gear/pulley to a shaft) considered a fastener?
A214. Yes.