

# THE 2000 FIRST ROBOTICS COMPETITION

## TEAM UPDATE #9

**Date: February 18, 2000**

---

### FIRST-SME REGISTRATION

FIRST-SME Registration can be done on-line at [www.first-sme.org](http://www.first-sme.org). On-line registration can be completed very quickly and will result in faster receipt of your Partnership Card.

SME is currently working on a backlog of over 500 registration forms. If you have not yet registered, please use on line registration to help us get everyone registered and Partnership Cards delivered prior to the start of our events.

Response to this program has been excellent and will provide FIRST with valuable data on participants in the Robotics Competition. Thank you to everyone who has registered!

### MOBILE MACHINE SHOPS

FIRST has had extensive discussions with our event planner and insurance carrier concerning the use of mobile machine shops on site at our events. Due to liability issues with these shops and the fact that FIRST provides a machine shop and staff at each event, we must unfortunately NOT allow mobile shops to be brought to FIRST events. This does not affect tools used in your pit station. We regret any inconvenience this may cause.

### WHEELCHAIR ACCESS

If a Robot Operator, Human Player, or Coach needs wheelchair access to the field, please contact either [tclement@usfirst.org](mailto:tclement@usfirst.org) or [lbuckley@usfirst.org](mailto:lbuckley@usfirst.org) as soon as possible.

### DRAYAGE CORRECTION

In the Regional Section of your manual, there was a misprint of the phone number for certain drayage sites. The correct phone number for the California Regional drayage facility is (408)395-0893. The correct phone number to the drayage facility for the Virginia Regional is (804)788-4400. The correct phone number to the drayage facility for the Michigan Regional and Illinois Regional is (630)351-3976.

### CRATING INFORMATION CORRECTION

In Drayage Section of each Regional, it was stated that the team name, number and site location needed to be printed in 6" high letters/numbers. Please be aware that **only** the team number must be 6" high. The rest of the address can be small enough that it fits on your crate, but big enough so that it's legible.

## RULES QUESTIONS & ANSWERS

- Q215. Would it be against the rules to use streamers on our entrance into the competition? They would not be left on the floor. We would just throw them out in the beginning and hold on to the tail the whole time.
- A215. It is not against the rules to use the streamers however please be aware:
1. Safety requires that you are careful not to aim at other people as material may get in their eyes.
  2. We need to keep traffic moving on the playing field so material should NOT land on the field and hold up the games.
- Q216. In the rule DQ12 , it states that lifting an opponent's robot off the carpet can get you disqualified, but if someone, anyone, has a device that you can roll on you get 10 points, Alliance Partner or not. There is an inconsistency, which one is true?
- A216. The inconsistency lies in A179 (Team Update #7) which states that, in order to score 10 points, it has to be your alliance partner that picks you up if you are not hanging from the bar over the ramp. We already stated earlier in Q25 that it was okay for a robot to drive onto the ramp of an opposing alliance's robot in order to score 10 points, and will stick by the answer given in Q25. Regarding DQ12 and lifting an opponent's robot, we are making an important distinction between "lifting" and "climbing on". When robot A drives onto a ramp on robot B that is designed to support a robot, we do not consider robot B to be lifting robot A. This is because robot A is the primary one causing the action and it is likely to only gain a small amount of altitude above the playing field. We feel that the use of these ramps is unlikely to result in damage to either robot, so it is okay. What we do consider lifting is if robot B has a forklift or overhead crane type of lifting mechanism and it tries to use it's own motors and/or pneumatics to pick robot A up off the floor. We consider that much more likely to cause damage, and is why we only allow alliance partners to lift each other.
- Q217. In reference to Q&A 25 in Team Update#2, would that also be pinning if it is done with more than 10 seconds in a match? Would you be allowed to push off a robot and roll on yourself? Wouldn't this create a possible war ON a robot?
- A217. We do not consider it "pinning" if an opposing robot drives onto your ramp. Pinning applies only to holding a robot still against a playing field feature, such as the field border (see DQ7). Pushing a robot off your robot's ramp in order to allow another to climb on is okay, just as is pushing robots off the field ramp. Basically, having a ramp on your robot is a double-edged sword.
- Q218. Our team is using the pneumatics on our robot, how do we recharge our tank at an event?
- A218. SMC Pneumatics will have a booth at each event and will exchange a charged tank for your empty tank. Please remember that your tank will

need to be easily removable for replacement. SMC will not recharge an air tank still mounted on the robot.

Q219. We know that we can only utilize one battery at a time. However, would we be able to mount two batteries for weight distribution but only be "connected" to one battery?

A219. Having two batteries on the robot (even for just weight) is not allowed. See Rule K10.

Q220. I notice that Plexiglas® or a substitute is not mentioned as an acceptable material for this year's competition. We had hoped to use it for general coverage and installation of sponsor stickers. Am I wrong or am I just mistaken?

A220. Plexiglas is not on the Additional Hardware List, but polycarbonate is. That is because Plexiglas tends to shatter much more easily than polycarbonate. If you wish to make a "non-functional decoration", then you may use whatever materials you wish. See Rule M10. Keep in mind that whatever you make is likely to experience impacts during the matches, so durability should be a concern. I have seen many robots in former years with very nice looking logos applied to large thin polycarbonate sheets, and they typically end up in many pieces after 1 day of competition. Also, any material which spans a large gap in the structure of the robot, such that it might prevent a ball from bouncing into the middle of the robot, would be considered "functional". Therefore, if you wish to display a large logo, be sure to put the "non-functional" decoration on top of some other material that functions as the robot's structure.

Q221. Are we allowed to use shim stock (brass or plastic) for aligning bearings under the fasteners, washers, nuts, adhesives category of the Additional Parts List?

A221. Shim stock does not count as a fastener. However, steel and aluminum plate (up to 1/4" thick) is listed on the Additional Hardware List, so shims made of steel or aluminum are okay.

Q222. What is the limitation on the usage of Velcro? Does it fall under the category of Fasteners, Washers, Nuts, and Adhesives in the Additional Hardware List?

A222. Velcro is a fastener. Fasteners are listed on the Additional Hardware List and the use is no longer limited to "Joining ONLY" as of Team Update #7.

Q223. Would it be legal to use the project box on the robot in order to mount the servos and some switches? The rules say that it is intended to be used for the operators station does this mean that it can only be used for that?

A223. Yes, it is okay the use the project box on the robot.

Q224. Is it permissible to mount legal pneumatic components on the robot which provide motor cooling during the long (10-15min) practice rounds even though these components would be removed from the robot during competition rounds because they made the robot overweight?

A224. Yes, as long as it does not damage the field or present a safety hazard. The robots do not have to pass inspection in order to participate in the practice rounds.

Q225. May we use three drill motors on our robot if we purchase the same model included in the kit?

A225. No. Drill motors are not listed on the Additional Hardware List. Therefore, you may only use 2 drill motors on the robot.

Q226. Please clarify what is meant by the statements A207, "We do not limit the materials that may be used in constructing the interface for the operators" and A211 "Yes, all materials are fair game".

A226. We don't restrict the materials, but we do place limits on how components may be connected electronically. Specifically, you are only allowed to wire components according to the control system documentation provided by Innovation First, and Section 2 and Appendix A of The Robot section of the manual. The goal of not restricting the materials is to allow teams to construct elaborate physical interfaces for the drivers, such as glove mounted switches, arm-mounted potentiometers, easy-to-carry operator control board that can be quickly setup on the alliance station shelf, etc.

Q227. In the manual, it specifies that the van door motors need to be wired with 10-gauge wire, however, the connectors for the motors that are included in the kit are a smaller gauge(16 gauge.) Are we allowed to use the connectors included with the kit, and only use the 10 gauge if the wires are extended(as stated in a team update for the FP motors), or do we need to wire the motor with 10 gauge, thereby not using the connectors given in the kit?

A227. You do not need to remove the existing wire from the motor. However, there is no mating connector for the Van Door Motor, so you need to cut the connector off and attach to the wires (via solder, crimp-on connectors, wire nuts, etc.) You only need 10 AWG wire if you intend to extend the wires from the motor.

Q227. We need to know if it is part of the rules to have each individual piece of the robot listed and weighed separately. Also, what lists of materials or costs do we need?

A227. The robot is weighed as a whole. You do not need to list the parts per se, but should have an accurate accounting of value of the parts purchased from Small Parts, Inc. and the quantities used for materials on the Additional Hardware List which are limited by quantity.

- Q228. In reference to M3 (robot bumpers), may the bumper be made of a hard material, say metal, and be mounted to the chassis with home made shock absorbers? The outside edge of the bumper would be compress, say 3 or 4 inches when hit by an opponent robot and return to original position when released.
- A228. Per Rule M3: "The outer face of the hard backing must be covered with an energy absorbing material which does not come loose during a match." Thus, the bumper material itself would need to absorb the impact, such as by crumpling or compressing. Having a hard front to the bumper that does not deform does not satisfy the above criteria.