

Section
4



The Robot

Table of Contents

4.1 – Overview.....	2
4.2 – Robot Rules.....	2

Section 4 – The Robot

4.1 – Overview

This chapter provides rules and requirements for the design and construction of your robot. A *Magbot Mayhem* robot is a remotely operated vehicle designed and built by a registered *Magbot Mayhem* team to perform specific tasks when competing in *Magbot Mayhem - Avalanche*. Prior to competing at each event, all robots will have to pass an inspection. Refer to Appendix 1 for the Robot Inspection Guidelines and the Inspection Checklist.

4.2 – Robot Rules

There are specific rules and limitations that apply to the design and construction of your robot. Please ensure that you are familiar with each of these robot rules before proceeding with robot design.

<R1> One robot will be allowed to compete per team. Though it is expected that teams will make changes to their *robot* at the competition, a team is limited to only ONE robot.

- a. It is against the intent of this rule to compete with one robot, while a second robot is being modified or assembled.

<R2> Every robot will be required to pass a full inspection before being cleared to compete. This inspection will ensure that all robot rules and regulations are met. Initial inspections will take place during team registration/practice time.

- a. If significant changes are made to a robot, it must be re-inspected before it will be allowed to compete.
- b. All robot configurations must be inspected before being used in competition.
- c. Teams may be requested to submit to random spot-inspections by event personnel. Refusal to submit will result in disqualification.
- d. Referees or inspectors may decide that a robot is in violation of the rules. In this event, the team in violation will be disqualified and the robot will be barred from the playing field until it passes re-inspection.

For further information on the inspection process please refer to Appendix 1, Robot Inspection Guidelines

<R3> The following types of mechanisms and components are NOT allowed:

- a. Those that could potentially damage playing field components.
- b. Those that intentionally detach parts.
- c. Those that pose an unnecessary risk of interference with other competitions which may be held concurrent to *Magbot Mayhem – Avalanche*.

<R4> At the beginning of any match, the maximum allowed size of a robot is 18" x 18" x 18".

- a. During inspections, robots will be placed into a "sizing box" which has interior dimensions matching the above size constraints. To pass inspection, a robot must fit within the box without exerting ANY force on the box walls or ceiling (i.e., if the robot cannot be held inside the constraints by the box itself). The orientation of the robot when sized must be the same as its orientation when placed on the field.
- b. Robots may expand beyond their starting size constraints after the start of a match.
- c. Any restraints used to maintain starting size (i.e. zip ties, rubber bands, string, etc.) MUST remain attached to the robot for the duration of the match.

<R5> Robot construction is constrained to the following:

1. Only one (1) Microcontroller/control unit.
2. Up to ten (10) Motors or Servos (Any combination, up to ten)
3. Up to two (2) RF receivers or WiFi transmitter/receivers pairs.

<R6> Robots must display their team number (numerals/alpha only, i.e. “148” or “148-A”).

- a. The judges, referees, and announcers must be able to easily identify robots by team number.
- b. Team number must be visible from the top.
- c. The numerals must each be at least three inches high, at least in 3/4-inch stroke width and in a contrasting color from their background.