

Super Scramble Heavy (SSB)

December 3, 2017

- Code: SSB
Control: Tethered or Autonomous
Open to: **All** up to Senior 4
Max Robot Size: 1 meter perimeter, 20 cm maximum width. Max 17.1 cm high to pass under the “Ball Drop”
Weight limit: Between 751 grams and 3000 grams
Playing Field Size: 2ft x 22-26ft (depending on track modules used).
Playing Field: 2ft sq. modules, symmetrical from end to end except for the centre which will allow only one robot to pass at a time
Playing Field Surface: May comprise; rope bridge, simulated whirlpool, textured from smooth undulating through sandy to pebble &/or river washed rock, and more. Must keep your wits about you as there are no barriers to the edge of the playing field though we will provide some cushioned protection for falling robots.
Explanation: Your robot is required to accept a payload of one 1” steel ball bearing and deliver this payload into a receptacle(Chute) at the other end of the playing field, after crossing uneven terrain. (See page 3 for description of Chute)
The task is completed when the first robot to deposit its payload into the bottom of the chute, which will trigger flashing lights above to denote the winner.
This competition is open to wheeled, tracked or walking type robots.
Robot Specifications: **The** robot will have, a maximum width of 20 cm. *and* must be able to be constrained (surrounded) by a flexible sheath 1 meter length, *and* have a maximum height of 17.1cm to fit under the Ball Drop.
The robot weight including accessories must be greater than 750 grams, and less than 3Kg, as weighed on the scale provided by the MRG for registration for the competition. (It is highly recommended that a method be incorporated into the robot design to adjust the weight if needed).
Restrictions: Power may be contained within the hand controller to a maximum 6 volts, or on board up to 12v.
No Fuel Cells allowed.
Lithium Ion, Lithium Polymer may be used under strict conditions (see MRG General Rules p3).
All Lithium based batteries must be commercially available battery packs, unaltered, and identifiable to the judges (have the original label visible).
Only one Lithium based battery pack can be used at a time, although you may have replacement packs if stored in a safe manner.(see General Rules)
Power in controller - Lithium based cells(1.2v) or battery packs(up to 6v) are to be secured in, or to, the hand held controller in such a way as to avoid direct contact by the operator.
Power on board the robot - The battery pack(up to 12v) must be secured within the robot in such a way as to avoid detachment in the event the robot leaves the track or is flipped.
The charging of all Lithium based batteries shall be performed in the charging area provided. A volunteer will be available to monitor for excessive heat, leakage or eruption of the batteries but will not be responsible for theft. If any charging battery is deemed to be in danger of eruption, the supervising volunteer will cover the battery with sand and remove it from the building, therefore we recommend the battery be removed from the robot or controller for charging if possible.
Care must be taken to ensure that the tether conductors can safely handle the maximum current without heating either the conductors or hand controller to dangerous levels.

Tether control wires are limited to a maximum of 8 x 24 gauge conductors for the tether.

Radio controlled robots must use authorized RC land-use frequencies.

All radio controlled robots should have incorporated into their design the provision for a change of frequency without the use of soldering equipment.

The robot shall not contain parts that could break or damage the Playing field.

This competition is intended to challenge the robot designer/builder to build from scratch, therefore a commercially made robot/radio controlled, or other tethered off-road vehicles must be significantly modified.

Robot Identification: **The** MRG identification sticker(s) (as supplied during weigh-in) must be easily readable on the robot's body while the robot is in competition.

Game Principles: **Both** robots will start at opposite ends upon being loaded with the payroll by an overhead loader.

Contestants will position themselves one on each end of the playing field and will try not to hinder their opponent. If robot tethers become tangled, both contestants will stop their robot's progress to allow the controllers to be passed through until the tethers are free at which point the competition may resume.

The first robot to have reached "goal" (when their payload, the ball, has been deposited in, and has reached the bottom of the chute, triggering flashing lights at that end of the track) will be considered the winner of that bout.

Each match should be completed within 3 minutes and will be scheduled 5 minutes apart unless dictated by the judge in charge.

Bumping the opposing robot may be inevitable, however intentional blocking is not allowed.

Game Procedure

Beginning of the Game: **At the** judge's instruction, the robots are placed in the playing field in a position to accept the payload.

When both contestants are ready, the judge will signal the start of the round by releasing the payload.

The round ends when a robot successfully navigates the entire track and deposits the ball in the chute at the other end of the playing field activating the blue lights

It is suggested, but not mandatory, that, for both tethered and autonomous robots, the start mechanism could be derived from the seating of the steel ball (payload).

A team may halt the start, just once, within 10 seconds of the start. This allows for last moment emergencies like forgetting to plug in a battery. The start can be delayed no longer than 60 seconds.

End of the Game: **The** winner of the match will have the best 2 rounds of three.

MRG General Rules: Failure to follow the MRG General Rules may result in the following:

Warning being issued, or

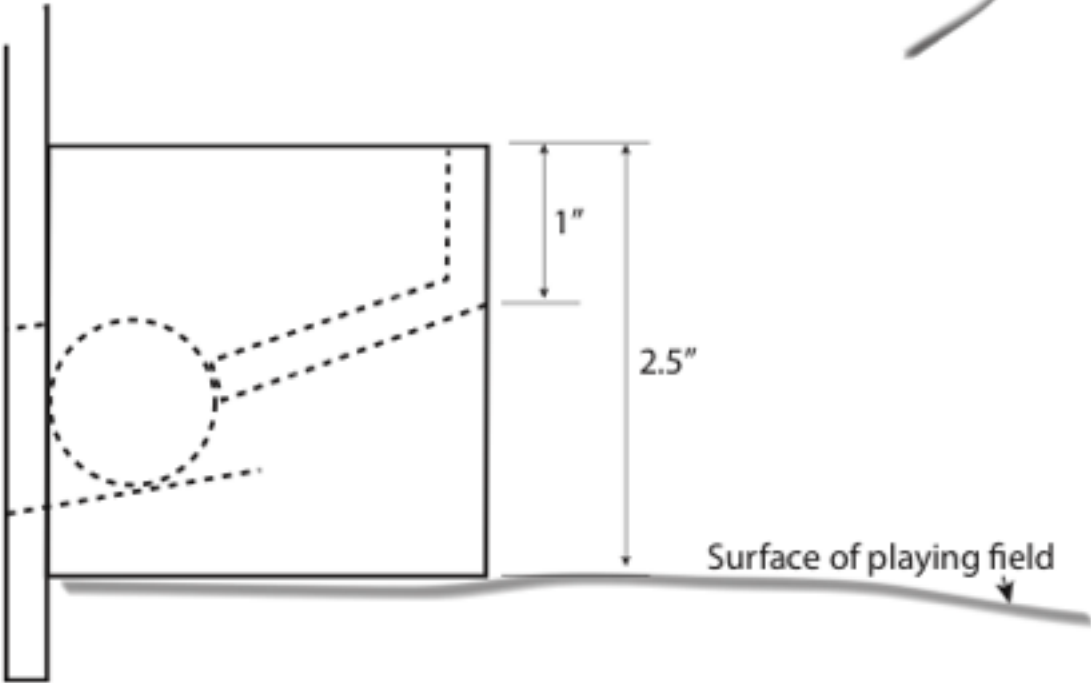
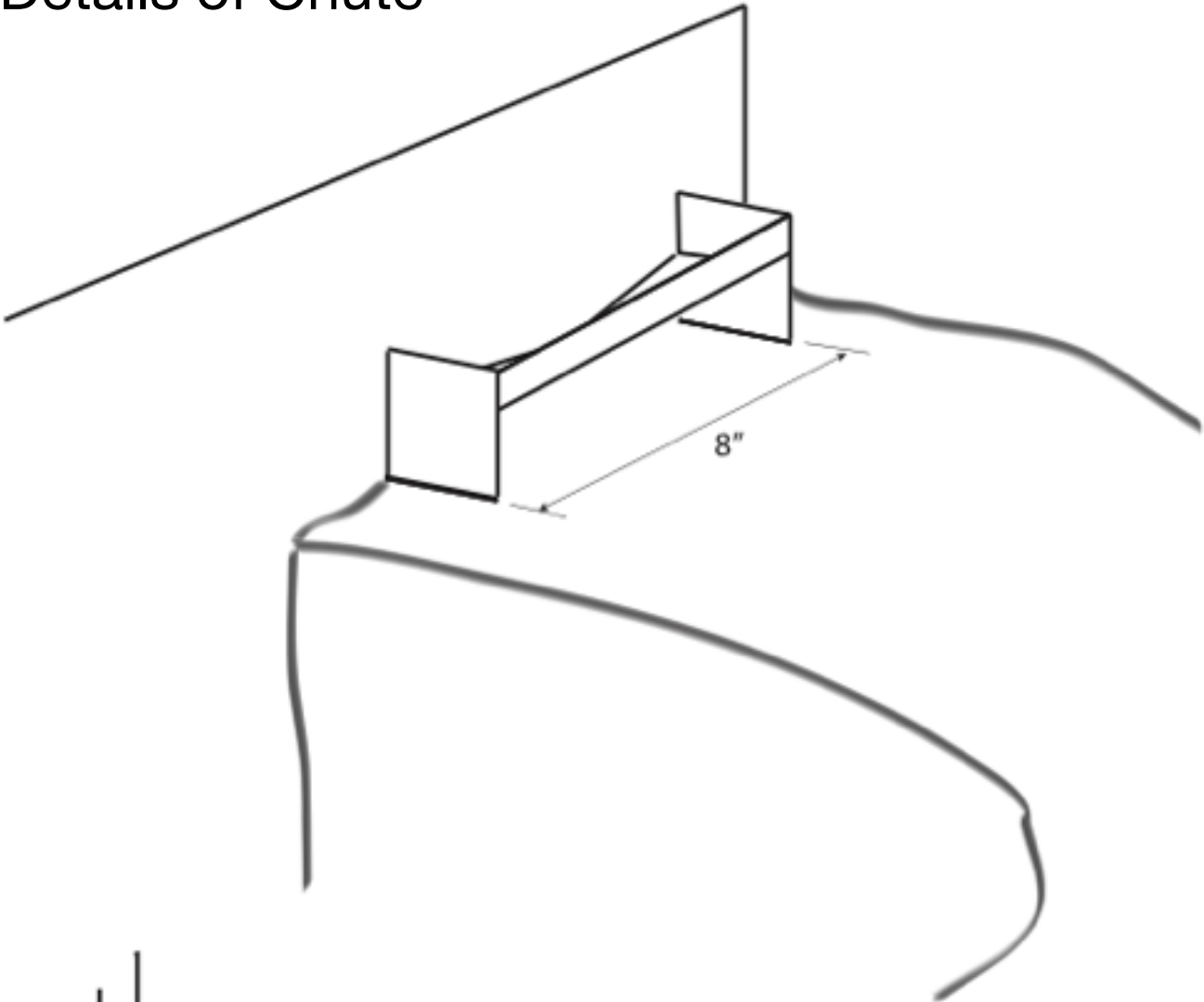
Disqualification and loss of the round or match, or

Disqualification from competition and or event.

See page 3 for details of **Chute**

See page 4 for details of **Ball Drop**

Details of Chute



Details of Ball Drop

