

## 2. THE PLAYING FIELD

### 2.1 Playing Field Description

The playing field is a carpeted, hexagon-shaped area with a vertically oriented hexagonal shaped central goal and 3 rail goals extending outward from the central goal. Around the perimeter of the field are 3 stations for human players, and three stations for drivers and coaches. Prior to the start of each match, balls are placed in specific starting locations around the playing field, on the rail goals, and at the player stations, as shown in Figures 1.1 and 1.2.

#### 2.1.1 Border

The perimeter of the field is defined by 3 sections forming a curb made of 4x6 lumber, and 3 1x4 boards which join these sections at the human player positions. These flat boards are used to provide rigid connections between the sections of 4x6 lumber that make up the field border and allow balls to be passed from the field into the player stations. These boards are attached to recesses in the bottom of the 4x6 border such that they do not raise them off the carpet. The border assembly rests directly on the carpet.

A barrier is constructed from 1 1/4 inch diameter schedule 40 steel pipe and connecting fittings, and is mounted to the tops of the 4x6 border by pipe flanges. The exact dimensions of the various sections, the assembly, and special hardware required are shown in the field and field parts list documentation that is supplied with The Competition Manual at the kick off.

#### 2.1.2 Player Stations

There are 3 player stations located outside the perimeter of the playing field. The stations are centered on three sides of the hexagonal field as shown in Figure 1.1. The playing field barrier extends across the player station locations at the breaks in the 4x6 playing field borders at the interfaces between the field and player stations. This barrier is just high enough to allow balls to be pushed into the player station without allowing robots in. Aside from these barriers, the player stations have no physical structure. Player station borders are represented by tape on the floor.

Each player station is 5 feet wide (parallel to the field border), and 6 feet long (extending out perpendicular to the field border). Each station is divided into two areas, the human player zone where the player can sit/stand/kneel/etc., and the interaction zone. The interaction zone extends outward from the playing field border for a distance of 3 feet. The remaining player area extends 3 feet further from the interaction zone. The exact dimensions, assembly, and locations of the player stations are indicated in the field and field parts list documentation which were supplied with the Competition Manual.

### 2.1.3 Driver Stations

The driver stations are located outside the playing field. Driver stations consist of a table surface supported by an arrangement of the 1 1/4 inch diameter schedule 40 steel pipe and fittings. The team's Transmitter, the associated control equipment, and safety glasses are placed on this surface. A transparent safety shield is mounted on the field side of the station for protection of the driver. The borders of the driver stations are represented by tape on the floor. The exact dimensions and locations of the driver stations are shown in the field and field parts list documentation. If there is someone on the team with a physical disability, such as someone sitting in a wheelchair, we can have a special shorter control station at an event. If your team will need this station at their event(s), please contact FIRST so we can make it available.

### 2.1.4 Goal Description

The assembly consists of a central vertical goal and 3 rail goals that slope downward from the outside field borders to the central goal. Assembly of the central goal and the rail goals are shown in the field and field parts list documentation.

#### 2.1.4.1 Central Goal

The central goal is comprised of a 8 foot tall, hexagon-shaped central goal mounted with 3 pairs of equally spaced vertical members.

#### 2.1.4.2 Rail Goal

The 3 horizontal rail goals slope downward toward the central goal from the field borders. There are cross stops positioned on each ramp to keep the balls equally spaced so they are restricted from rolling toward the central goal. These stops are used to position the balls during set up before each game begins.

### 2.1.5 Playing Field Notes

The carpet used for the playing fields is available from S.S. Mills, Inc. in Dalton, Georgia. See Supplier Contact Information in Appendix C for address and telephone number. The product description is: BR20, Code 87509, Brassfield 20/Pewter.

Notes that relate to field component tolerances, ball inflation, and carpet and goal placement are presented in Appendix A under the Field (F) section.