

## 8.0 Robot Inspection

### 8.1 Overview

This section describes *Robot* Inspection for the *FIRST* Tech Challenge competition. It also lists the inspection definitions and inspection rules.

### 8.2 Description

The *FIRST* Tech Challenge *Robot* will be required to pass *Robot* and Field inspections before being cleared to compete. These inspections will ensure that all *Robot* rules and regulations are met. Initial inspections will take place during *Team* check-in/practice time. The official “*Robot* Inspection Checklists” are located in Appendices B and C.

#### 8.2.1 Team Self-Inspection

*Teams* are highly recommended to conduct a self-inspection of their *Robot* and submit the completed *Robot* Inspection forms to the *Robot* Inspectors. *Teams* should go through each checklist at least a week before the competition to make sure their *Robot* is made up of legal parts.

### 8.3 Definitions

*Robot Initialization Routine* – A set of programming instructions that runs after Init is pressed on the *Driver Station*, but before Start for both Driver Controlled and Autonomous periods.

*Robot Sizing Tool* – A sturdily constructed device with the interior dimensions: 18 inches (45.72 cm) wide by 18 inches (45.72 cm) long by 18 inches (45.72 cm) high that has one open side with an interior opening size of 18 inches (45.72 cm) wide by 18 inches (45.72 cm) long. The Sizing Tool is used for *Robot* Inspection as outlined in section 7.3.1.

### 8.4 Inspection Rules

**<I1> Inspection** - Every *Robot* is required to pass a full inspection before being cleared to compete. This inspection ensures that all *FIRST* Tech Challenge *Robot* rules are met.

All *Robot* configurations must be inspected before being used in competition.

- a. If significant changes are made to a *Robot* after passing initial inspection, it must be re-inspected before it can compete.
- b. Referees or inspectors may request the re-inspection of a *Robot*. The *Robot* cannot participate in a *Match* until it passes re-inspection. Refusal to submit to re-inspection will result in *Team* disqualification from the tournament.
- c. A *Robot* may be rejected at inspection if the Lead Inspector considers it unsafe.

**<I2> Practice Matches** - *FIRST* Tech Challenge *Teams* must submit their *Robot* for inspection before participating in *Practice Matches*. A *Robot* may be allowed to participate in *Practice Matches* before passing inspection if allowed by the Lead Robot Inspector.

**<I3> Qualification Matches** - The *Team*'s *Robot* must pass all inspections before participating in *Qualification Matches*. Refusal to follow any *Robot* design, construction rule, or programming rules may result in disqualification of the *Team* at a *FIRST* Tech Challenge tournament.

**<I4> Re-Inspection** – Physical changes to a *Robot* that improve performance or add capability must pass re-inspection prior to being eligible to play in the next *Match*.

**<I5> Safety** - It is the Inspector's responsibility to evaluate Robots to ensure each Robot is designed to operate safely. Section 7 of this manual, and Game Manual Part 2, section 4.6.1 outline the safety rules and limits that apply to the design and construction of all Robots.

**<I6> Passing Inspection** - *Robot* inspection is a Pass or Fail process. A *Robot* has passed inspection when all requirements listed on the official FIRST Tech Challenge "Robot and Field Inspection Sheets" are successfully met and recorded as passed by an Inspector.

**<I7> All Mechanisms are Inspected** - For Inspection, the *Robot* must be presented with all mechanisms (including all parts of each, configurations, and decorations that will be used on the *Robot* during the competition. *Robots* are allowed to play *Matches* with a subset of the mechanisms that were present during inspection. Only mechanisms that were present during inspection may be added, removed, or reconfigured between *Matches*. The *Robot* should be assembled in a typical configuration used for *Matches* play when reporting for inspection.

- a. *Robot* and all mechanisms must be inspected in every starting configuration.
- b. If mechanisms are swapped out between *Matches*, the reconfigured *Robot* must still meet all *Robot* and inspection rules.
- c. The total of all electronics (motors, servos, *Core* modules, Android devices, etc.) used to build all mechanisms and base *Robot*, whether they are used on the *Robot* at the same time or not, may not exceed the constraints specified in the *Robot* rules.

**<I8> Wheel or Tread *Playing Field* Damage Test** - *Robot* Inspectors have the authority to ask that a *Team* test their wheels or treads that they feel might cause damage to the *Playing Field*. Not every tread or wheel can be evaluated and posted as a legal or illegal part. Therefore, the tread test is a quick way to find out if a *Team's* wheels or treads are competition legal.

The *Robot* Inspector should place the *Robot* on top of a field tile and against an immovable surface (wall) and run the wheels at full power for 15 seconds. If there is any physical damage to the floor tile, the wheels will not be allowed. Discoloration or black marks alone are not considered field damage. The test must be made with the *Robot* at the weight it will be at during the competition since this will affect the degree of damage.

**<I9> Team Supplied Scoring Element Inspection** - *Team* Supplied Scoring Elements will be inspected before the start of the competition, when *Robot* inspection takes place. A *Team* Supplied Scoring Element must be re-inspected if it is changed after initial inspection.