



FTC Robot Rules

2024/25

Competition Manual Organization

- Bi-weekly manual updates
- Q&A is supportive of the manual, but doesn't override manual
- The rules are exactly what they say—within reason. If it's not otherwise specified, it's assumed to be allowed. (“show me the rule”)

Competition Manual Organization

- Sections are organized to collect rules together based on when they will be enforced and who or what they apply to.
- Robot Rules (R) – only describe how to make a legal ROBOT
No penalties for violating these rules because that happens in game play, not robot design or inspection
- Game Rules (G) – describe the game play, violations, and penalties by role.

Competition Manual Updates

- Any important rule updates or clarifications will be written in the Competition Manual.
- Releases will happen on a biweekly (twice a month) basis.
- “Team Updates” will be posted on the *FIRST* website at the same time as the biweekly update.
- Mentors can sign up for “Team Updates” email notifications through the *FIRSTinspires.org* website.



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FIRST Tech Challenge 2024-2025 Game & Season Materials

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[Team Update](#)

Game Specifics

Past seasons' manuals can be found on the [Archived Game Documentation](#) webpage. A text-based English version can be provided only for use with assistive devices and not for redistribution; please email for information.

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Team members 18+ can sign up for email notifications as Team Updates are posted.

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Robot Inspection

- To ensure the safety of all robots.
- To check that robots are build follow the Robot Rules.
 - Check the inspection list
- Robot Inspectors are there to help teams understand the rules and ensure the robots are safe.



Robot Rules

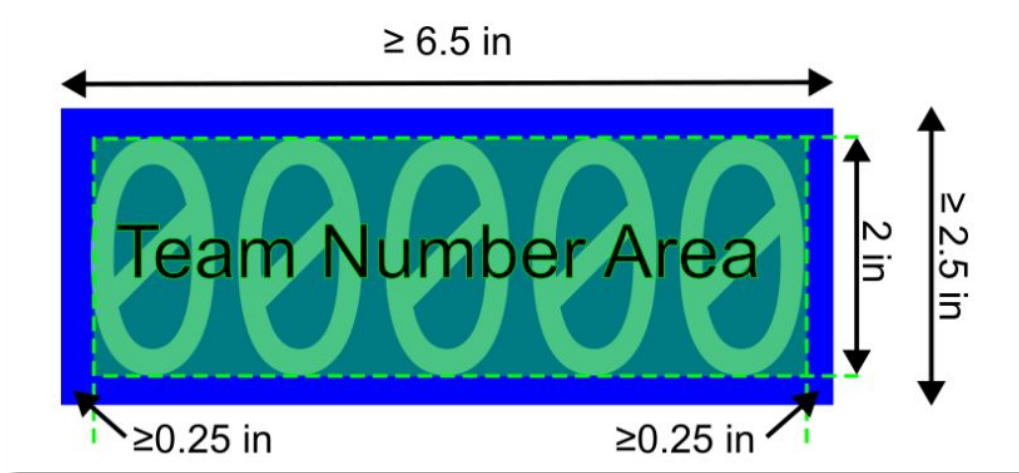
- More legal electronics options - new batteries!!!!!!!!!!!!
- Servo Power Limits
almost all servos previously being used are still legal!
- Software Minimum Versions – recommended not required

FIRST will have an updated quick reference including the new devices that are available (legal and illegal parts list)

Robot Rules – new Team SIGNS

Make team alliance identification easier for field staff.

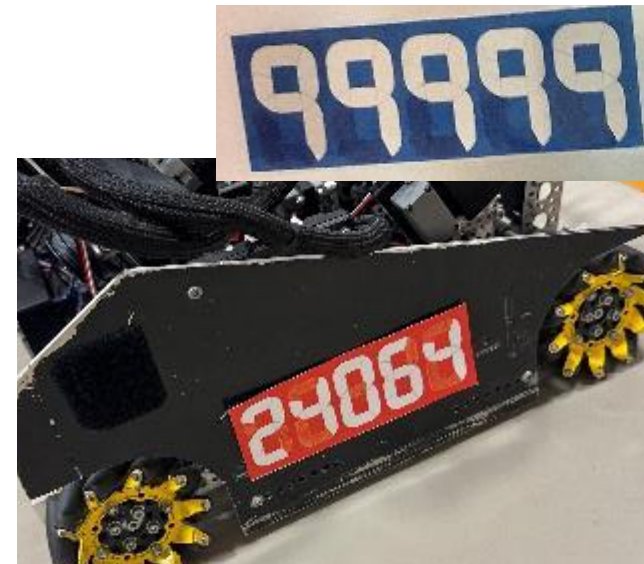
Team signs can be made out of any legal material for robots.*



Robot Rules – Team SIGNS

It must be white numbers on a solid rectangular alliance-coloured background.

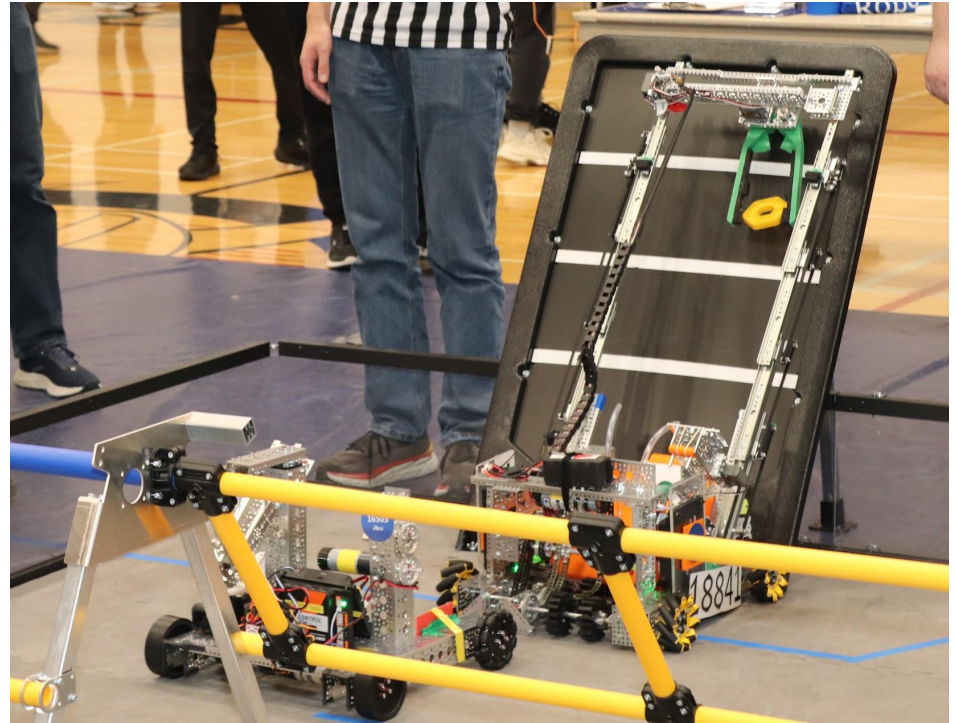
A template, which uses red and blue markers, will be available to print.



Robot Rules - new Expansion Limits

Robots must start match within 18" size limit.

NEW! Robots cannot expand infinitely during the match.



Robot Rules - Expansion Limits

R104 **There is a horizontal expansion limit.** After the MATCH has started, ROBOTS may expand beyond the STARTING CONFIGURATION but must stay within an overall working ARENA TILE footprint. The overall working footprint has the following constraints:

- A. has no vertical height limit
- B. is a 20" x 42" (50.8cm x 116.8cm) rectangle measured parallel (coplanar) to the TILE floor
- C. is always a vertical projection relative to the TILES, so robots which change orientation (drive, tip, spin, etc.) during the match are still subject to the horizontal expansion limit measured parallel (coplanar) to the TILES.
- D. [game specific exception may be added at kickoff on 9/7/2024]

This rule is intended to limit the amount of floor area each robot can cover with the maximum mechanical range of motion of all extensions.

Teams should be prepared to show compliance with this rule and demonstrate their robot expansions during the inspection process. During inspection each ROBOT will need to demonstrate that the full mechanical range of motion of all extensions outside of STARTING CONFIGURATION will be contained within a fixed 20 in by 42 in working area.

Teams are subject to penalties listed in [\[G###\]](#) for any violations during the MATCH.

Made by FTC 23511

Robot Rules - Safe when powered off

R204 *SCORING ELEMENTS stay with the FIELD. ROBOTS must allow removal of SCORING ELEMENTS from the ROBOT and the ROBOT from FIELD elements while powered off.

Teams must make sure that SCORING ELEMENTS and ROBOTS can be quickly, simply, and safely removed.

Teams are encouraged to consider [G501](#) when developing their ROBOTS.

Additional Consideration - Robot initialization

- Teams must initialize their robot as soon as possible

10.3.3 OPERATOR CONSOLES

DRIVE TEAMS set up their OPERATOR CONSOLES as soon as they are staged in their ALLIANCE AREA. OPERATOR CONSOLES must be compliant with all relevant rules, specifically those in section [12.9 OPERATOR CONSOLE](#). A DRIVE TEAM obstructing or delaying OPERATOR CONSOLE set up is at risk of violating [G301](#).

- Careful not to have stalled devices!

Quick event rule reminder

SAFETY GLASSES



WEAR THEM

Good luck this season!

Please read the Competition Manual!!

