

**FIRST**<sup>®</sup>

**DIVE**<sup>SM</sup>

PRESENTED BY **Qualcomm**

# FIRSTWA FTC Staff



PRESENTED BY RTX



PRESENTED BY HMAS



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# Agenda

- Final League Assignments
- Registration and Payment Reminders
- Season Calendar Overview
- Advancement within Washington
- Preparing for Your First Event
- Important Changes – Inspection and Design
- Questions

## League Assignments are Posted

- All league assignments are posted
  - FIRSTWA: <https://firstwa.org/ftc-competition-info/>
  - FIRST: <https://ftc-events.firstinspires.org/2024/region/USWA>,  
“Leagues” tab
- If you don’t see your team, and you believe you’re registered, let us know ASAP
- Specific information about your events should be coming from League Coordinators in the next few days

# Registration and Payments Reminder

- FIRST HQ Registration
  - Must be done before your first event
    - Recommend at least 2-3 days prior
- FIRST WA Registration
  - If you registered by October 1<sup>st</sup>, invoices were sent out last night
    - Sent to the person specified during FIRSTWA Registration
  - Remaining invoices will be sent by end of this week
  - Payments due by October 25<sup>th</sup>

# Season Calendar Overview

- October 25<sup>th</sup>: FIRSTWA Invoice Payments Due
- *October 26<sup>th</sup> – November 24<sup>th</sup>: League Meets*
- November 19<sup>th</sup>: Coaches Chat
- *December 7<sup>th</sup> – 21<sup>st</sup>: Interleague Events*
- December 15<sup>th</sup>: Dean's List Submissions Due
- December 17<sup>th</sup>: Coaches Chat
- *January 11<sup>th</sup> – 12<sup>th</sup>: Semifinals*

# League Events by Date

10/26	Shockley LM1					
10/27	Knuth LM1	Maxwell LM1	Ritchie LM1			
11/2	Agnesi LM1	Bardeen LM1	Hopper LM1	Lamarr LM1	Lovelace LM1	Salk LM1
11/3	Brattain LM1	Noddack LM1	Turing LM1			
11/9						
11/10	Spencer LM1					
11/16	Bardeen LM2	Lamarr LM2	Salk LM2			
11/17	Knuth LM2	Maxwell LM2				
11/23	Agnesi LM2	Hopper LM2	Lovelace LM2	Shockley LM2		
11/24	Brattain LM2	Noddack LM2	Ritchie LM2	Spencer LM2	Turing LM2	

# Interleague, Semifinal, and State Events by Date

12/7	Feynman		
12/8	Pasteur		
12/14	Curie	Watt	Wu
12/15	Hawking		
12/21	Tesla		
1/11/25	Asimov		
1/12/25	Capek		
2/1/25	State		



Curie  
*Agnesi + Hopper*  
27 teams  
8 Advance

Watt  
*Lovelace + Shockley*  
34 teams  
10 Advance

Tesla  
*Bardeen + Spencer*  
22 Teams  
7 Advance

Wu  
*Noddack + Salk*  
27 teams  
8 Advance

Asimov  
33 of 110 teams  
14 advance

Semifinals will be at  
**Tahoma High School**  
in **Maple Valley**

State Championship  
24 of 175 teams  
?? advance

Feynman  
*Knuth + Lamarr*  
25 Teams  
8 Advance

Capek  
24 of 75 teams  
10 advance

Hawking  
*Maxwell + Turing*  
24 Teams  
8 Advance

Pasteur  
*Brattain + Ritchie*  
26 Teams  
8 Advance

## Preparing for your first event

- You need to print your team roster and bring it to **every** event you attend. The roster should list:
  - Your coaches & mentors
  - Your student participants
- Team must be event ready
  - Both coaches signed forms and passed YPP screening with FIRST
- You must have paid FIRST and FIRSTWA Registration

## What else should your bring to your first event?

- Safety glasses
- Robot and batteries
- Tools and repair supplies
- Everything required to drive the robot
- Power strip (in case you need more than 1 outlet)
- Extension cord
- **Safety glasses**
- Patience and Gracious Professionalism

Do NOT need to bring portfolio or judging documentation to your league meets



## Important Changes – Inspection and Design

## R104 – There is a Horizontal Expansion Limit

Extensions are limited to a 20 in. x 42 in. rectangle

**From the manual:** *This rule is intended to limit the amount of floor area each ROBOT can cover with the maximum range of motion of all extensions*

Extension may be limited by hardware and/or software limits

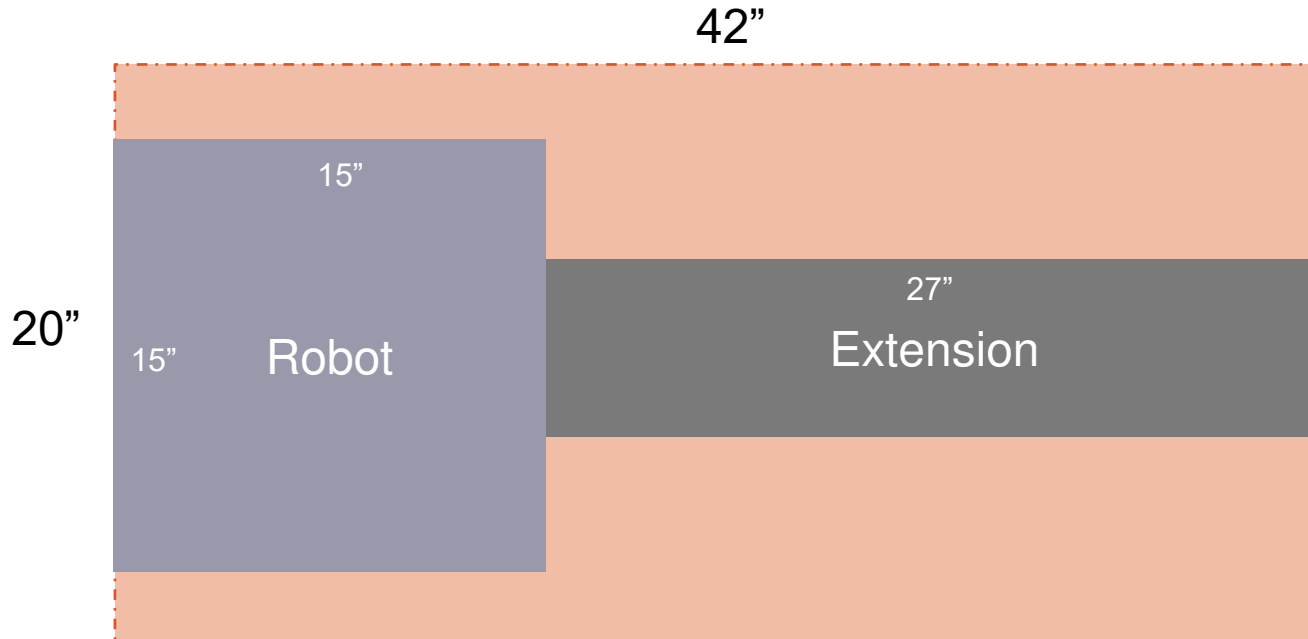
Teams must be prepared to show that their robot is legal during inspection

## R104 – There is a Horizontal Expansion Limit

- How will this be inspected?
  - Inspection will have a 20" x 42" area taped off
  - Team will place their robot somewhere within the 20" x 42" area
  - Once placed, robot chassis cannot be moved
    - For the purpose of inspection
  - Team will demonstrate all possible extensions
  - Inspectors will verify that you stay inside the taped off area

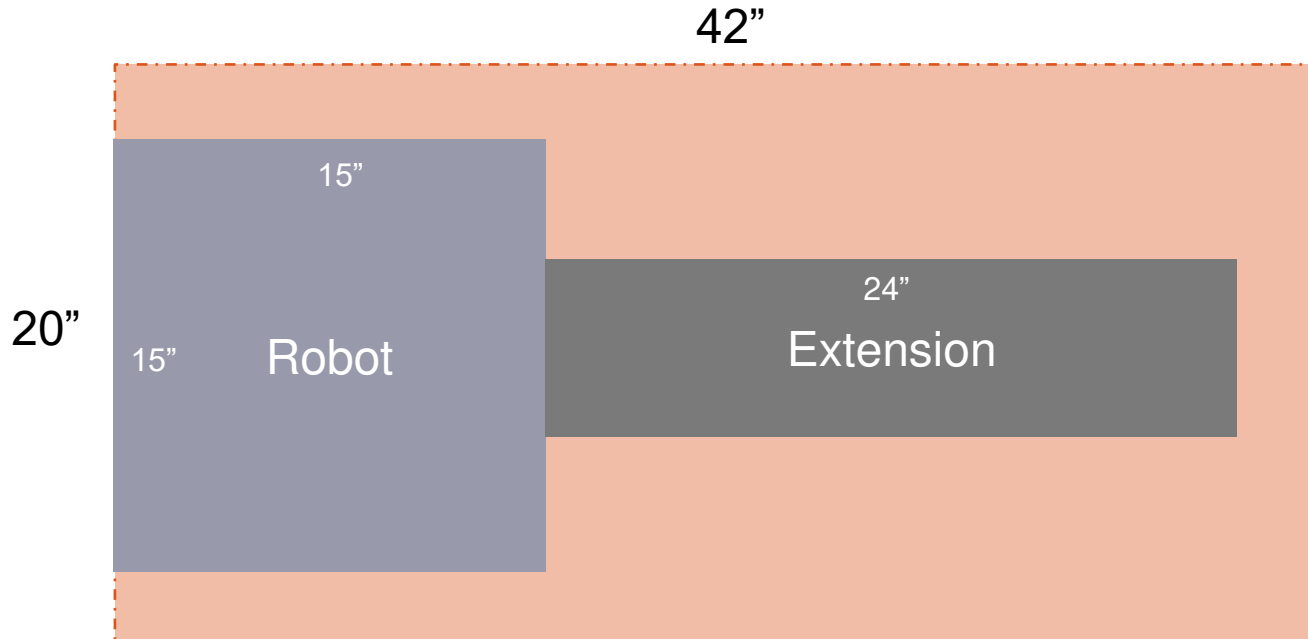
# R104 – There is a Horizontal Expansion Limit

LEGAL



# R104 – There is a Horizontal Expansion Limit

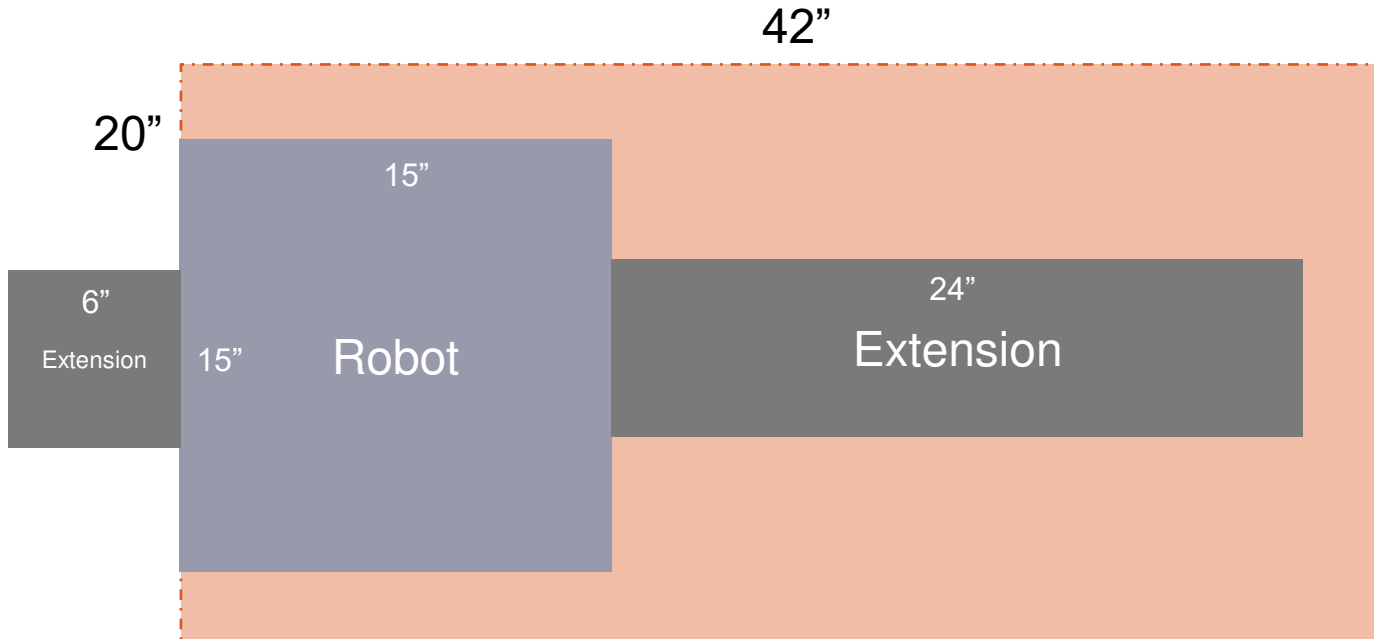
LEGAL





# R104 – There is a Horizontal Expansion Limit

**ILLEGAL**

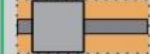
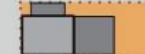




## R104 – There is a Horizontal Expansion Limit



**OK**



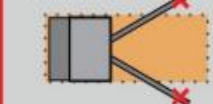
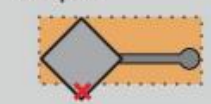
ROBOTS that demonstrate their full range of motion of all extensions and remain within the horizontal size boundary are OK

<p><b>Example A</b></p>  <p>Example A has extensions on opposite sides of the CHASSIS. At full extension the ROBOT remains inside the boundary.</p>	<p><b>Example B</b></p>  <p>Example B has extensions on adjacent sides of the CHASSIS. At full extension the ROBOT remains inside the boundary.</p>
<p><b>Example C</b></p>  <p>Example C has extensions on opposite sides which are wider than the CHASSIS. At full extension the ROBOT remains inside the boundary.</p>	<p><b>Example D</b></p>  <p>Example D has an extension which extends from a corner of the CHASSIS. At full extension the ROBOT remains inside the boundary.</p>



**NOT OK**

ROBOTS that demonstrate their full range of motion of all extensions and extend beyond the horizontal size boundary are NOT OK

<p><b>Example E</b></p>  <p>Example E has extensions on opposite sides of the CHASSIS. At full extension the ROBOT DOES NOT remain inside the boundary.</p>	<p><b>Example F</b></p>  <p>Example F has extensions on adjacent sides of the CHASSIS. At full extension the ROBOT DOES NOT remain inside the boundary.</p>
<p><b>Example G</b></p>  <p>Example G has extensions wider than the CHASSIS. At full extension the ROBOT DOES NOT remain inside the boundary.</p>	<p><b>Example H</b></p>  <p>Example H has an extension which extends from a corner of the CHASSIS. At full extension the ROBOT DOES NOT remain inside the boundary.</p>



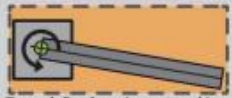
## R104 – There is a Horizontal Expansion Limit

**CAUTION**

**ROBOTS with mechanisms that move relative to the CHASSIS should be careful to keep within the horizontal size boundary.**

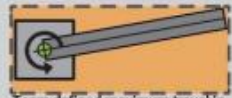
**Example I - "Turret Mechanism"**  
 ROBOTS with an arm on a pivot that rotates in the horizontal plane may violate this rule if the arm rotation extends the mechanism beyond the horizontal size boundary even if the overall size of the robot could still fit within a 42 x 20 in. box. ROBOTS with mechanisms capable of horizontal rotation should ensure rotation is restricted to remain inside the boundary defined during inspection at all times during MATCH play.

**Position A**



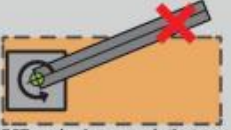
Team defined maximum travel in clockwise direction as viewed from top

**Position B**



Team defined maximum travel in counter-clockwise direction as viewed from top

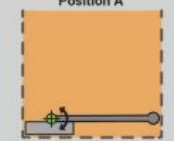
**Position C**



ROBOT mechanism exceeds the team defined maximum allowable travel and extends outside the boundary. The boundary does not move with the mechanism therefore this would be a violation.

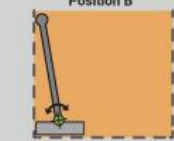
**Example J - "Pivot Arm Mechanism"**  
 ROBOTS with an arm on a pivot that rotates in the vertical plane may violate this rule if the arm rotation extends the mechanism beyond the horizontal size boundary even if the overall size of the robot could still fit within a 42 x 20 in. box. ROBOTS with mechanisms capable of vertical rotation should ensure rotation is restricted to remain inside the boundary defined during inspection at all times during MATCH play.

**Position A**



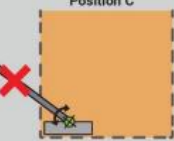
Team defined maximum travel in clockwise direction as viewed from side

**Position B**



Team defined maximum travel in counter-clockwise direction as viewed from side


**Position C**



ROBOT mechanism exceeds the team defined maximum allowable travel and extends outside the boundary. The boundary does not move with the mechanism therefore this would be a violation.


**Example K - "Sliding Extension Mechanism"**  
 ROBOTS with linear extensions in the horizontal plane may violate this rule if the extension extends beyond the horizontal size boundary as it moves even if the overall size of the robot could still fit within a 42 x 20 in. box. ROBOTS with mechanisms capable of linear extension should ensure motion is restricted to remain inside the boundary defined during inspection at all times during MATCH play.

**Position A**




Team defined maximum travel in one direction as viewed from side

**Position B**



Team defined maximum travel in opposite direction as viewed from side

**Position C**



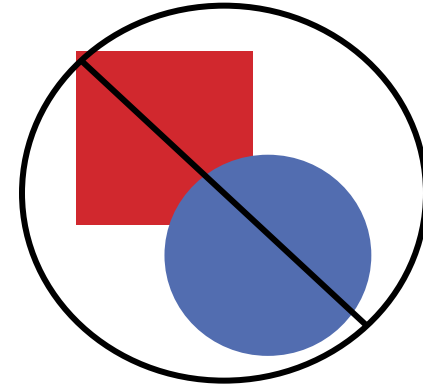
ROBOT mechanism exceeds the team defined maximum allowable travel and extends outside the boundary. The boundary does not move with the mechanism therefore this would be a violation.



## Section 12.4 – Robot Signs

Robots no longer use alliance markers

Robots instead have robot signs



Swyft Robotics Robot Sign - \$Free

## Section 12.6 - Power Rules

Power Switch	Part Number
AndyMark FTC Power Switch w/ Bracket	am-4969
REV Switch Cable and Bracket	REV-31-1387
Studica On/Off Power Switch Kit	70182
TETRIX R/C Switch Kit	W39129

Grounding Strap	Part Number
AndyMark Resistive Grounding Strap	am-4648a
REV Resistive Grounding Strap	REV-31-1269

Battery Pack	Part Number	Notes
AndyMark Flat Pack Battery DC 12V	am-5290	
goBILDA 12V NiMH Nested Battery	3100-0012-0020	
Matrix 12V 3000mAh NiMH	14-0014	
REV 12V Slim Battery	REV-31-1302	
Studica 12V 3000mAh NiMH	70025	
TETRIX MAX 12V 3000mAh NiMH	W39057	Formerly 739023



## Other Inspection Changes

- Software versions are a recommendation, not a requirement (R713)
- Limelight 3A is FTC Legal (R703)
- Rules for servos give more specifications (R502)
- Custom parts, designs, and software may be used from year to year (R302 + R303)
- No team-provided elements that require inspection this year

## Game Rules with Design Implications

- Teams must select and initialize an OpMode before the match (G304)
- Autonomous programs can be stopped for any reason (G401.B)
- Robots may **not** move for any reason between Auto and Teleop (G405)
- Robots cannot be controlled after the end of Teleop (G406)
  - Do not have to stop the program, just put down controllers
- Robots must display team signs at all times (G415)
- All programs have to be stopped before a team enters the field (G502)

Questions?

The image features a solid black background with the word "Questions?" centered in a white, sans-serif font. Scattered across the background are numerous blue circles of varying diameters. Some circles are solid, while others have a white ring or shadow, giving them a 3D or bubble-like appearance. The circles are distributed across the frame, with a higher concentration around the central text.