

Q&A

VEX V5 Robotics Competition 2024-2025: High Stakes

Tagged: SG1

Welcome to the official VEX V5 Robotics Competition Question & Answer system, where all registered teams have the opportunity to ask for official rules interpretations and clarifications. This Q&A system is the only source for official V5RC High Stakes rules clarifications, and the clarifications made here from the Game Design Committee (GDC) are considered as official and binding as the written [Game Manual](#) itself.

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679: RSC1 Skills Start - Home Zone Straddling?

22-Oct-2020

SG1

RULE Appendix B pg iii RSC 1 Robots may start the Robot Skills Match per SG 1 in either Home Zone with the Drive Team Members standing in the Alliance Station that corresponds with that Home Zone

DEFINITION Appendix A pg 8 Home Zone - One of two (2) areas, one (1) for each Alliance, where Robots start the match and defines the location of the Alliance Home Row. The Home Zones are defined by the inner edges of the field perimeter and the outer edge of the tape line that runs across the field adjacent to the Alliance Stations, i.e. the tape line is part of the Home Zone. The Alliance Home Zone is closest to their Alliance Stations The Home Zone refers to the foam field tiles; it is not a 3-dimensional volume

Question - confirm assumptions below

= assumption 1 - robot may not be contacting the gray foam field tiles outside of the Alliances Home Zone?

= assumption 2 - robot may not be contacting the gray foam field tiles on other side of 2nd white line in an adjacent area of Alliances Home Zone?

= assumption 3 - maybe same question, robot may not be contacting the gray foam field tiles, essentially straddling both areas in home zone, even if the robot is not not contacting the gray foam field tiles outside of the Alliances Home Zone?

Answered by committee

We apologize, but we are not going to be able to answer this question without additional clarifying details and context. Please re-phrase and re-submit, perhaps with a photo or detailed diagram of the scenario in question, and we would be happy to provide a better answer.

576: Starting Position Clarification

26-Feb-2020

SG1

According to <SG1.a> it states:

<SG1> Starting a Match. Prior to the start of each Match, the Robot must be placed such that it is: a. Contacting the field perimeter wall on the side that coincides with their Alliance's Goal Zone and Alliance Station.

My question is which of the following 2 interpretations is correct:

1. The robot may be placed anywhere along the field perimeter that is parallel to the Alliance Station as long as it satisfies all other <SG1> requirements.
2. The robot is required to be placed within the bounds of the Alliance Station. This interpretation is due to the use of the word coincides, which according to the oxford dictionary means to meet; to share the same place. [Oxford Dictionary: coincides](#)

Also, if you examine the given example in "Figure 18: Four examples of Robots in valid starting positions" on page 20 of the Game Manual, it's obvious that all four robots are within the bounds of the Alliance Station.

Answered by committee

My question is which of the following 2 interpretations is correct:

1. The robot may be placed anywhere along the field perimeter that is parallel to the Alliance Station as long as it satisfies all other <SG1> requirements.
2. The robot is required to be placed within the bounds of the Alliance Station. This interpretation is due to the use of the word coincides, which according to the oxford dictionary means to meet; to share the same place. [Oxford Dictionary: coincides](#)

Your first interpretation is correct. The following Q&A also provides some additional clarification on this point: <https://www.robotevents.com/VRC/2019-2020/QA/396>

509: touching side

27-Jan-2020

SG1

When robots are in start position, I know they have to be touching the side of the arena. How much has to be touching? Can one screw that is sticking out from the robot be all that is touching?

Answered by committee

Please review the [Q&A Usage Guidelines](#), specifically point 1, "Read and search the manual before posting." This question is answered by rule SG1:

<SG1> Starting a Match. Prior to the start of each Match, the Robot must be placed such that it is:

- a. Contacting the field perimeter wall on the side that coincides with their Alliance's Goal Zone and Alliance Station.
- b. Contacting a foam field tile.
- c. Not contacting a Tower.
- d. Not contacting any Cubes other than the Preload.
- e. Contacting a Preload.
The Preload must be contacting exactly one (1) Robot.
The Preload must be fully within the field perimeter.
- f. Not contacting a Goal Zone or a Barrier.
- g. Not contacting another Robot.

There is no criteria listed in SG1 for how much of the Robot must be contacting the field perimeter wall.

399: Definition of Possession and Cube Starting Positions

28-Oct-2019

G12 SG1

Rule SG1 Section E states that at the beginning of a match a robot must be “Contacting a Preload. 1. The Preload must be contacting exactly one (1) Robot. 2. The Preload must be fully within the field perimeter.” Recently at an event, a team had brought up that the way this rule is written, it would allow teams to place their preload inside of a goal zone so long as the robot is contacting the cube and not contacting the goal zone as defined as “ the inner edges of the Barriers and the field perimeter” or the barrier (both of which as per SG1 section f).

The only rule that we see that may contradict this is G12 section d which states “Game elements in possession of a Robot are an extension of that Robot.” Because possession is not defined in the current game manual, without looking back at the Turning Point or In the Zone game manuals (which as it is known, previous rules do not apply to current game rules), it is difficult to properly rule whether the cube is in possession. This is question number 1 and 2: Is there anything that we are missing when coming to the conclusion of the starting position mentioned above, and can you define possession?

Now, once you define possession, if a cube is considered in possession of a robot, while the robot is in its starting position and if this cube is contacting either the barrier or the goal zone; would this be in violation of SG1 as per G12 “Game elements in possession of a robot are an extension of that robot,” because technically the robot through the extension of the cube is contacting the barrier/ goal zone? Would we also be correct to assume that this same violation would apply if the cube in possession of the robot were contacting any other items covered by SG1 (such as another cube or Tower) then this would be a violation due to G12? Thank you.

Answered by committee

First - the rules and definitions quoted in your question are incomplete, and have a strong impact on how to interpret this situation.

The full text of SG1 is as follows:

<SG1> Starting a Match. Prior to the start of each Match, the Robot must be placed such that it is:

- a. Contacting the field perimeter wall on the side that coincides with their Alliance’s Goal Zone and Alliance Station.
- b. Contacting a foam field tile.
- c. Not contacting a Tower.
- d. Not contacting any Cubes other than the Preload.
- e. Contacting a Preload.

1. The Preload must be contacting exactly one (1) Robot.

2. The Preload must be fully within the field perimeter.

- f. Not contacting a Goal Zone or a Barrier.

- g. Not contacting another Robot.

Note: If a Robot is not present for their Match, then their Preload will instead be placed randomly by the Head Referee such that it satisfies all conditions 1-7 laid out above (contacting the field perimeter wall, not contacting a Robot, etc).

The full definition of Goal Zone is as follows:

Goal Zone - One of four (4) areas of foam field tiles defined by the inner edges of the Barriers and the field perimeter in which Robots can Score Cubes. The Barrier and field perimeter are not considered part of the Goal Zone.

The Goal Zones are explicitly defined as the foam tiles, not the 3-dimensional volumes above them.

With that in mind, rule SG7 is the rule that directly applies to this situation, not G12:

<SG7> Use Cubes to play the game. Cubes may not be used to accomplish actions that would be otherwise illegal if they were attempted by Robot mechanisms. Examples include (but are not limited to):

- Encroaching upon an opponent's Protected Zone per <SG3>.
- Interfering with an opponent's Autonomous Period per <SG2>.

Therefore, a definition of possession is not necessary in the context of this question. Starting with a Preload Cube that is contacting the Goal Zone (foam tiles, not the space above it) would be considered a violation of SG1 via SG7, and would not be a legal starting configuration.

396: <SG1> Legal starting location

27-Oct-2019

SG1

<SG1> Starting a Match. Prior to the start of each Match, the Robot must be placed such that it is: a. Contacting the field perimeter wall on the side that coincides with their Alliance's Goal Zone and Alliance Station.

Does "on the side that coincides" refer to the 12ft of field perimeter directly next to the Alliance station? or does "SIDE" refer to the entire half of the field on that Alliance's side of the field?

The first interpretation give a little less than 12ft of perimeter wall to start on.

If its the later interpretation, FIELD side, that gives an additional length of wall to start on (extending towards the center autonomous line on each end of the field).

Answered by committee

Does "on the side that coincides" refer to the 12ft of field perimeter directly next to the Alliance station? or does "SIDE" refer to the entire half of the field on that Alliance's side of the field?

Your first interpretation is correct.

Although "Starting Wall" is not a defined term, Figure 3 in the Game Manual denotes the side that is parallel to the Alliance Station / Autonomous Line as the intended starting position to help make SG1 more clear. The walls that are perpendicular to the Alliance Stations / Autonomous Line are not considered "coincident" with the Alliance Station, and are not valid starting positions.

316: Robot placement at start of the match SG1

11-Jul-2019

SG1

In rule SG1 it states "b. Contacting a foam field tile." does this mean exactly one tile or can a robot straddle 2 tiles?

Answered by committee

In rule SG1 it states "b. Contacting a foam field tile." does this mean exactly one tile or can a robot straddle 2 tiles?

Robots are not limited to one foam field tile; contacting more than one would still satisfy the intent of SG1b.

2567: Alliance Starting Positions - Opposite Sides Required?

24-Feb-2025

SG1

According to <SG1> in the VEX IQ Game Manual, it outlines the pre-match setup requirements, including:

a. Satisfying starting zone constraints. b. Contacting the field perimeter wall. c. Contacting a preload. d. Being stationary. e. Not occupying the same starting zone as the alliance partner. <SG1> does not explicitly state that alliance robots must start on opposite sides of the field.

Therefore, is it legal for alliance robots to start on the same side of the field, provided:

One robot starts in Starting Zone 1 and the other in Starting Zone 2. Both robots meet all other requirements of <SG1> (preload contact, wall contact, etc.)? [<SG1>](#)

Additionally, at two recent tournaments, the head referees required teams to set up their robots on opposite sides of the field. This interpretation, while enforced, appears to contradict the literal wording of <SG1>. We are seeking official clarification to ensure consistent application of the rules. Hopefully we can have clarification prior to our regional tournament

Answered by committee

There is no rule requiring the two Robots to start the Match contacting the Field Perimeter wall on opposing sides of the Field. Therefore, it is legal for both Robots to start the Match contacting the Field Perimeter wall on the same side of the Field, assuming all requirements of rule [<SG1>](#) are met by both Robots.

2527: Preload Zone Requirements

12-Feb-2025

SG1

In a teamwork or skills match is there a portion of the preload ball that is required to be within the same starting zone as a robot or is the only requirement that the preload ball be touching the robot which is legally in the zone? Trying to understand is there a requirement for preloads similar to Q&A 2192 which is referencing rapid loads where it requires a portion of the ball to still touch that zone.

Example 1: If the robot was all the way against the edge of the zone 1, touching the preload ball that was sitting majority in zone 2 and barely crossing the vertical plane and not touching zone 1, is this legal?

Example 2: If the robot is in zone 1, holding the ball in the air but majority of the ball is in zone 2 in the air, is this legal?

Q&A 2473 tries to ask a similar question but the answer only references the ball is not required to be in the size limit, but does not reference zone. I am asking again because we have seen Refs interpret this differently and do not think SG1 Answers this.

Answered by committee

The only requirements for a Preload Ball's position at the start of the Match comes from the definition in the Game-Specific Definitions in Section 2 of the game manual, "Preload – A Ball that is placed in contact with a Robot prior to a Match. See <SG1>" and clause C of rule <SG1> that says a Robot can only be contacting one Preload.

There is no requirement that a Preload be in a specific Starting Zone, or in a single Starting Zone. If each Robot is contacting exactly one Preload at the start of the Match, all requirements have been met.

2476: Clarification for Q&A 2192

28-Jan-2025

RSC4 SG1

<RSC4>

Q&A 2192 states that "there is no requirement that a Rapid Load ball must be placed entirely within the volume of that Starting Zone, only that the Ball be contacting the Floor inside that Starting Zone"

Does this also apply to the optional second ball in Starting Zone 1 for Drivers Skills? Or does this ONLY apply to Rapid Load?

- Could the 2nd ball for Drivers Skills be placed directly in front of the robot in Starting Zone 2, where it touches not only Starting Zone 1 but also Starting Zone 2 at the same time? To be in compliance with <SG1> it cannot also contact the robot as a second pre-load, correct?

Answered by committee

Q&A 2192 states that "there is no requirement that a Rapid Load ball must be placed entirely within the volume of that Starting Zone, only that the Ball be contacting the Floor inside that Starting Zone"

Does this also apply to the optional second ball in Starting Zone 1 for Drivers Skills? Or does this ONLY apply to Rapid Load?

This logic also applies to the optional 2nd Preload Ball in a Skills Match. If used, the 2nd Preload must be touching the Floor in Starting Zone 1 to start the Match, but it doesn't have to be fully contained within Starting Zone 1.

Could the 2nd ball for Drivers Skills be placed directly in front of the robot in Starting Zone 2, where it touches not only Starting Zone 1 but also Starting Zone 2 at the same time? To be in compliance with SG1 it cannot also contact the robot as a second pre-load, correct?

Yes. The 2nd Preload could be in contact with both Starting Zones, but cannot be in contact with the Robot.

2473: Clarification on Q&A's 2144 & 2157

28-Jan-2025

SG1

<SG1> 2144 - A Preload can be contacting the inside and/or outside of a Robot, but can't make the Robot exceed the size limits.

2157 - The Preload is not part of the Robot and does not have to be within the starting size limit.

The response to these Q&A's seem to contradict each other. These two responses specifically addressed the height limitation. Which is the correct application of the rule? Also, if the ball is placed outside of but in contact with the robot, must the ball be fully contained within the starting zone the robot begins the match in?

Answered by committee

[Q&A 2144](#) states that the Preload Ball cannot be positioned in such a way that makes the Robot exceed the starting size limit.

[Q&A 2157](#) states that the Preload Ball is not part of the Robot, so the Preload Ball does not have to be within the Robot starting size limit.

The logic is consistent. The Robot always has to start the Match within the starting size limit. The Preload Ball is not considered part of the Robot, so the Preload Ball does not have to fit within the Robot starting size limit.

2352: SG1/SG5 question - Both robots touching the same preload to start match

6-Dec-2024

SC8 SG1 SG5

SG1-b states that to start a match a robot can be touching 1 preload and SG1-c states that they can not be touching any other robots. My question is can both robots be touching the same preload?

Scenario that I have seen is where robot 1 had no autonomous and robot 2 could complete all steps to get AWP by themselves minus robot 1 breaking the plane of the starting line. So they lined both robots up with both touching one preload. Robot 2 started the autonomous by more less pushing robot 1 off the line by pushing the preload that both robots were touching and then robot 2 went and completed the other 3 steps to get AWP. Is this allowed or a rule violation?
[<SG1><SG5>](#)

Answered by committee

Clause A of rule [<SG5>](#) requires that each Robot have a preload placed such that it is (bold added here for emphasis), "Contacting **one** Robot of the same Alliance color as the preload."

Each preload may only be in contact with one Robot, and each Robot may only be in contact with one preload.

2339: SG1

2-Dec-2024

SG1

[<G1>](#)

Concerning SG1, item D...I want to have a feeder moving before the round begins. I will be "Completely stationary", but the feeder will be spinning. Is this okay?

Answered by committee

Clause D of rule [<SG1>](#) specifically requires that no mechanisms be in motion. This would include a "spinning feeder" and would definitely **not** be okay.

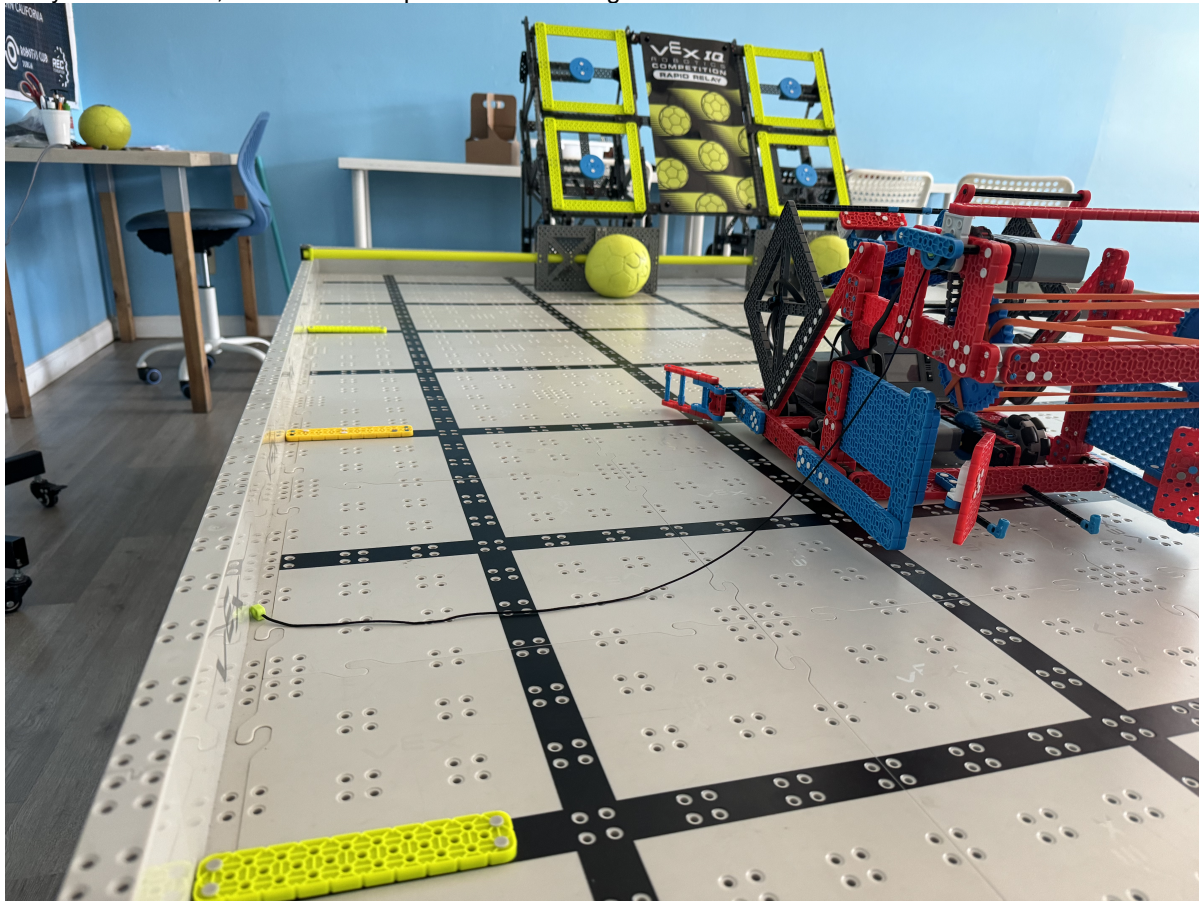
2277: Can EP/JA deny a team's design base on their assumption?

10-Nov-2024

G6 SG1

[<G6>](#) We were at an IQ event yesterday and my team has a string attached on a pulley design, which is attached to their roller shaft. They use this design to start a match having the robot being in the center of the field, while the string is touching the field wall, as they start the roller, the string will be retracted back inside of their robot. The EP/JA did not let our team use this design on the base of this might potentially tangle other robots. So he was assuming that our design will malfunction. Which does not make any sense to me. We see robots coming apart, or pieces falling in the field all the time, should those robot be banned from the matches? And we try to be understanding and respectful, and asked respectfully see if we can use the design in skills at least, there is no other robot for us to tangle in skills. But the answer is no. We can not use the string at all. That threw out our opportunity to do autonomous skills since our route was written based on the robot starting in the middle of the field and all the headings are based on that. This is legal VEX IQ part, even used in the swish bot design, please help me understand why a legal design using legal part would be banned by an EP/JA base on the reason that they think this might not work well.

For your reference, attached is the picture of the design.



Answered by committee

[Q&A 2213](#) specifically rules this strategy and part legal. Although the final determination of the legality of specific parts and mechanisms must be made by the Head Referee at your event, we do not feel that a string used for this purpose is a significant entanglement risk--particularly when it is retracted when the Robot moves.

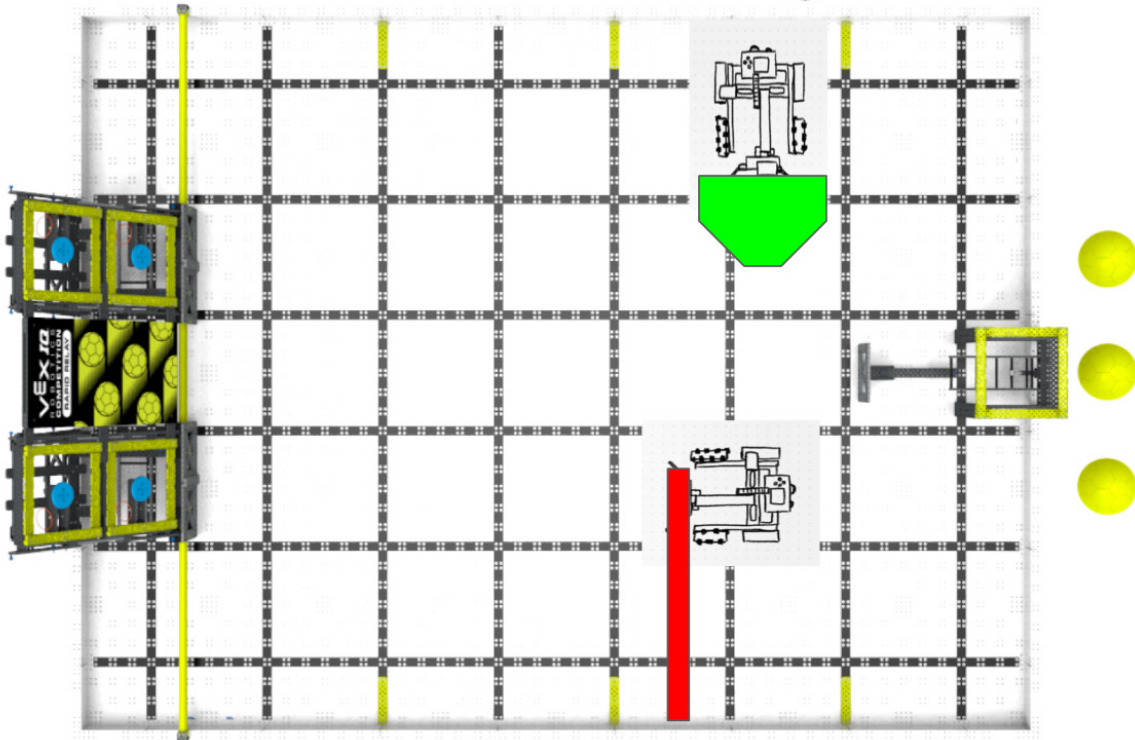
Additionally, we sincerely hope that the Event Partner and Judge Advisor weren't part of the decision to disallow this part. While rule [<T4>](#) gives the Event Partner ultimate authority over non-gameplay decisions, it is the Head Referee who has final authority on all gameplay and robot rulings (rule [<T1>](#)).

2228: With a Subsystem 3 change, can the inspection size orientation also change?

26-Oct-2024

SG1

Driving Orientation



Autonomous Orientation with extension

At a recent competition I had a team who had an alternate setup for autonomous. It was a subsystem 3 that was an extension that touched the inside of the wall so they did not need to program a turn like in the image below. They tried demonstrating this in inspection and were told by Head Judge and a on site Rec Foundation employee this was not a legal size. If measured as separate setups both were within size restrictions meeting SG1 and SG2. Based on the part they removed and added the robot needed to be put in different orientations to fit though, one direction for driving and one for autonomous like the [<SG1>](#) picture. Is there a requirement that when a subsystem 3 is changed it needs to be oriented in the same direction and meet size requirements, or is it ok to be oriented differently to meet size restrictions?

Answered by committee

There is no rule that requires different Robot configurations to fit in the Starting Zone in the same orientation. As long as each configuration is inspected, fits within the Starting Zone ([<SG1>](#)), and does not exceed the maximum legal size ([<SG2>](#)), this is legal.

2213: [<SG1>](#) Using string to contact Starting Zone in Autonomous Skills

22-Oct-2024
RSC8 SG1

Hello!

Recently at a competition we had a team that had a really impressive autonomous run and was using a strategy where they would pull the robot back to Starting Zone 2 but instead of contacting the inside of the field perimeter they would pull a piece of string that would contact the wall to satisfy the starting conditions in [<SG1>](#), contacting the inside of the field perimeter. Given robot expansion sizes, this would remain within the horizontal expansion limits specified in the game manual.

Would this approach be legal and does it fit within the spirit of the rules?

Cheers

Answered by committee

Assuming the Robot meets all of the following conditions, there is no rule against this strategy.

- Uses only VEX IQ-legal string (with connectors on the ends, as included in the [VEX IQ Winch and Rope Pack](#))
- Follows the guidelines for Robot resets in [<G10>](#), [<RSC8>](#), and [Q&A 2141](#)
- Meets the requirements of clauses A & B of [<SG1>](#) for each reset
- Remains within the size limits in [<SG2>](#)
- Breaks no other rules

2159: Robot part inside the Pick up zone

26-Sep-2024

SG1

Is it legality that any part of robot can break "under" the plane of the yellow PVC bar inside the "pick up" zone?

Answered by committee

There are no rules that prohibit a Robot from reaching over or under the PVC bar that defines the front edge of the Pickup Zone, therefore it is legal. However, per the 2nd Violation Note for rule [<SG6>](#), Robots should not retrieve Balls from the Pickup Zone.

2146: Starting Location Requirements

21-Sep-2024

SG1

[<SG1>](#)

Per [<SG1>](#), part (a) and part (b), is the robot allowed to overhang the wall in any capacity prior to starting the match?

IE - if the robot wheel is touching the inside of the Field Perimeter Wall but an attached motor is overhanging above the field perimeter, is this allowed? Or do the field walls function as an infinitely tall barrier that cannot be crossed for Pre-match setup?

Answered by committee

Clause B of rule [<R4>](#) and clause A of rule [<SG1>](#) both specify (bold added here for emphasis) that at the start of each Match, the Robot must fit **within** the volume of a Starting Zone, which is defined as:

Starting Zone – One of two areas of the Field where Robots may begin the Match. Starting Zones are infinitely tall 3-dimensional volumes, bound by the inside of the Field Perimeter walls and the inside edges of the black lines marked by yellow VEX IQ beams. See Figure SZ-1.

To answer your three questions directly:

1. The Robot cannot overhang the wall in its starting position.
 2. No part of the Robot, even a motor, can expand over or beyond the field perimeter at the start of a Match.
 3. Yes, the inside edge of the field perimeter corresponds to an infinitely tall plane that cannot be crossed by a Robot in its pre-Match setup.
-

2144: Preload Positioning within Robot

21-Sep-2024

SG1

[<SG1>](#)

<SG1> Per the Game Manual - "part c: contacting exactly one (1) Preload"

Can the robot move or manipulate the preload ball so it is "internal" to the robot prior to beginning the match? Or does the Preload have to be placed vertically onto the robot? IE - if there are rubber band rollers to move the ball up a ramp, can the motors be run to pre-position the ball midway up the ramp prior to the start of the match? Likewise, could the ball be "wedged" into position somewhere on the robot as a Preload (which would not require using the motors to get in position)?

Answered by committee

Clause C of rule [<SG1>](#) requires the Robot to be contacting exactly one Preload, and does not include any other stipulations or limitations.

Therefore, the Preload can be internal or external to the robot, as long as the Preload is contacting the Robot and the Robot still falls within the size limitations in [<SG1>](#) and [<R4>](#) (e.g., can't be taller than 15").

Provided the Team meets the requirements of rule [<T6>](#) and clause D of [<SG1>](#) and is both ready to play and completely stationary at the beginning of the Match, there is no rule that prohibits running a motor before the Match to position the Preload.

2053: Can the preload ball count as pass?

28-Jun-2024

SC5 SG1

At the beginning of the match, one balls can be preloaded to each of the robots. If each robot pass their ball to other robot when the match begins, Does it count as pass? Or all the pass has to count from the ball through loading zone.

Answered by committee

Yes. Each Preload Ball in a Teamwork Match can count for a maximum of one Pass, and is subject to all clauses of rule SC5.

Note: This answer was revised for clarity on September 12, 2024.

2051: SG1 clarification of SG1.a use of '/' in Contacting / "breaking the plane" of the Alliance's starting line clause

28-Jun-2024

SG1

[<SG1>](#)

In SG1.a, does the '/' symbol have the meaning:

1. 'and' - Contacting and "breaking the plane"

2. 'or' - Contacting or "breaking the plane"
3. 'and/or' - Contacting and/or "breaking the plane"

I can see different interpretations of this in early seasons when referees "over think it".

thank you

Answered by committee

Because the Starting Line is defined as an infinite vertical plane, contacting and "breaking the plane" have the same meaning. In this case, 'And', 'or,' and 'and/or' are all equally valid interpretations with the same end result.