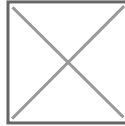


Q&A

VRC 2019-2020: Tower Takeover

Tagged: R3



Welcome to the official VEX 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 VRC Tower Takeover 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.

Please review the [Q&A Usage Guidelines](#) before posting. This system is only intended for specific VRC Tower Takeover rules questions.

- For event, registration, or other competition support questions, please contact your [REC Foundation Regional Support Manager](#).
 - For VEX technical support, contact support@vex.com or sales@vex.com.
- For game questions, suggestions, or concerns outside of specific and official rules questions, contact GDC@vex.com.

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80: Minor Field Damage Clarification

16-Sep-2018

G18 R3

A question from one of my team members:

<G18> Replays are allowed, but rare. Replays are at the discretion of the Event Partner and Head Referee, and will only be issued in the most extreme circumstances.

<R3> The following types of mechanisms and components are NOT allowed:

- a. Those that could potentially damage playing field components.
- b. Those that could potentially damage other competing robots.
- c. Those that pose an unnecessary risk of entanglement.

<S1> Be safe out there. If at any time the Robot operation or Team actions are deemed unsafe or have damaged any Field Elements or Game Objects, the offending Team may be Disabled and/or Disqualified at the discretion of the Head Referee. The Robot will require re-inspection before it may again take the field.

In the quarterfinals of a local tournament yesterday, the red alliance ran into a low flag in autonomous in such a way that it pivoted past 90 degrees (which isn't supposed to happen). Red also passed the center line in autonomous and blue scored more points. Here is a recording of the incident.

<https://drive.google.com/file/d/12NUL5WUIM0Lj3L41kPdXv0H2qCM06qZx/view?usp=sharing>

After some discussion, the head referee ruled that the damage to the field was too severe to continue playing the match. So, they reset the flag, told the four teams to reset their robots, and restarted the match. This time, red won the autonomous period, and then they ended up winning the match by 3 points (the winner of autonomous was match affecting).

I understand that the head referee's decision is final and that the calls for replays are made at their discretion. But in the same situation in the future, what is the correct call? Is the match replayed? Is the match continued with blue winning autonomous? Is the red robot disqualified or disabled?

Thank you!

Answered by Game Design Committee

First - as you noted, replays are always an option at the discretion of the Head Referee and Event Partner. Once a decision to replay has been made, the previous match is no longer relevant in any Match Affecting determinations, should they arise. Decisions made at an event by a Head Referee are final, and cannot be overturned by Q&A post after the event.

In this specific instance, for crossing the Autonomous Line, the Red Alliance would have been assessed an <SG3> violation and the Autonomous Bonus would have gone to the Blue Alliance.

In the future, over-rotating a Flag does not need to be cause for a replay. However, if done intentionally or repeatedly, it could be considered a violation of <S1>. Thus, <G10> may apply:

<G10> Rules still apply in the Autonomous Period. Any infractions committed during the Autonomous Period that are not Match Affecting, but do affect the outcome of the Autonomous Bonus, will result in the Autonomous Bonus being automatically awarded to the opposing Alliance.

- a. Teams are responsible for the actions of their Robots at all times, including during the Autonomous Period. Any infractions committed during the Autonomous Period that are Match Affecting can result in a Disqualification, if warranted by the rule.

If the match had not been replayed, then the over-rotated Flag would have been considered in any Match Affecting determinations (i.e. if the Match ended up being within the point value of one over-rotated Flag).

452: <G12> How to determine if incidental entanglement is egregious

10-Dec-2019

G12 R3 G13

<G12> Don't destroy other Robots. But, be prepared to encounter defense. Strategies aimed solely at the destruction, damage, tipping over, or Entanglement of opposing Robots are not part of the ethos of the VEX Robotics Competition and are not allowed. If the tipping, Entanglement, or damage is ruled to be intentional or **egregious**, the offending Team may be Disqualified from that Match. Repeated offenses could result in Disqualification from the entirety of the competition. b. VEX Robotics Competition Tower Takeover is an interactive game. Some incidental tipping, Entanglement, and damage may occur as a part of normal gameplay without violation. It will be up to the Head Referee's discretion whether the interaction was incidental or intentional.

<R3> Robots must be safe. The following types of mechanisms and components are NOT allowed: c. Those that pose an unnecessary risk of Entanglement.

<G13> Offensive Robots get the "benefit of the doubt". In the case where referees are forced to make a judgment call regarding a destructive interaction between a defensive and offensive Robot, or an interaction which results in a questionable rules violation, the referees will err on the side of the offensive Robot.

Egregious is not defined in the game manual, by Oxford Dictionary
<https://www.oxfordlearnersdictionaries.com/us/definition/english/egregious>

extremely bad

the definition of extremely

to a very high degree

extremely is a very subjective adjective, how should one determine if the incidental tipping is egregious? Does the duration of the entanglement(usually starts from the time of entanglement to the end of the game) matter? Does the scoring capability of the robots that are entangled matter(how much points would they score if they are not entangled)? Does the context when the entanglement happened(whether the robot was playing defense or offense) matter? Does R3 come into play as well, and we need to determine whether there was unnecessary risk of entanglement?

Two reference videos:

<https://youtu.be/AGJUpDCF0nQ?t=25953>

at 7:12:33 the blue robot was playing defense and has entangled with the red robot. Red won the match so the entanglement is not match affecting.

<https://youtu.be/EXhWerDR03w?t=187>

at 3:07 the red robot was playing defense and has entangled with the blue robot. Red was DQed for that match, I couldn't find any other violations in this game other than the entanglement, so I believe red is DQed for "egregious entanglement" since it was not intentional.

Answered by Game Design Committee

extremely is a very subjective adjective, how should one determine if the incidental tipping is egregious?

As you noted, this is a very subjective question. If it was possible to provide a black-and-white definition, then human Head Referees would not be necessary. It is the judgment and discretion of these Head Referees which determines if a given interaction is egregious or not.

We are not going to be able to provide a point-by-point checklist to determine where to draw this line. The answer to all of your specific questions is, "it could". In general, we would provide the following overarching guidelines:

- Context matters. As noted in [this similar Q&A](#), if a game is played more defensively at a different event, then it would stand to reason that the judgment calls would be handled differently in the context of that event.
- Offense vs defense matters. Per G13, offensive Robots usually get the "benefit of the doubt".
- On-field performance of the tipped/Entangled/damaged Robot generally does not matter. This is why G12 is one of the only rules in the Game Manual that does not hinge upon Match Affecting verbiage, and instead uses "egregious".

349: Ramming the towers

4-Sep-2019

R3

<R3> Robots must be safe. The following types of mechanisms and components are NOT allowed: a. Those that could potentially damage playing field components such as the field perimeter or Field Elements.

My teams noticed that it is possible to remove a cube placed in a tower by ramming the tower at full speed. This causes the tower to bend and then whiplash back, often dislodging the cube. As an EP my initial thought is that at the drivers meeting I will announce that this strategy is a violation of R3 because of the potential damage it would cause to the towers over the course of a tournament (or even more so over the course of a season). That drivers will be given a warning if it is done intentionally and be disqualified if they continue.

I just completed the referee certification, however, and it mentioned ramming several times in the final test that made it seem like an allowable strategy. My concern is that a pole may take a lot of damage before it breaks/becomes unusable. If ramming is allowed it would hardly be fair to the 20th team who bends the pole to give them a penalty simply because the pole was weakened by the preceding teams.

Are teams allowed to ram the towers intentionally? (obviously if a cube is barely in there and it

Answered by Game Design Committee

Please see this similar Q&A, which appears to be asking the same question: <https://events.vex.com/VRC/2019-2020/QA/293>

If this does not answer your question, please feel free to rephrase and re-submit.

My concern is that a pole may take a lot of damage before it breaks/becomes unusable. If ramming is allowed it would hardly be fair to the 20th team who bends the pole to give them a penalty simply because the pole was weakened by the preceding teams.

During development of VRC Tower Takeover, this specific scenario was tested by driving a VRC robot into a Tower several thousand times until the Tower failed. We are confident, based on this testing, that the number and severity of impacts needed to cause failure exceeds the realistic number of impacts that any given Tower will see throughout the competition season. Therefore, if a Tower does break as the result of a specific single Robot impact, it is highly likely that Robot has violated some other rule in order to cause that failure (e.g. S1 or G16).

348: Detaching robots and entanglement

One of my students wants to build a robot similar to this design to the ones featured in the following video but wants to make sure the design is legal before building it. Specifically in the video we are looking at designs that build a wall that detaches from the robot and the only connection is rope/string. <https://www.youtube.com/watch?v=Rznndditly0>

They are concerned firstly that rule G5 is being violated.

<G5> Keep your Robots together. Robots may not intentionally detach parts during the Match or leave mechanisms on the field.

The designers of these robots have defended at length on forums that their designs don't detach b mechanisms on the field."

Secondly if this sort of design is allowable within G5 they are also concerned that it would viol

<R3> Robots must be safe. The following types of mechanisms and components are NOT allowed: c. Those that pose an unnecessary risk of Entanglement.

Would leaving behind a trail of 20 feet of rope/string be considered an unnecessary risk of entan

Thanks in advance!

Answered by Game Design Committee

The designers of these robots have defended at length on forums that their designs don't detach because they are connected by rope/string. Is that enough to consider your robot parts still attached?

When there is no VRC-specific definition for a term, a dictionary definition should be used. The Oxford dictionary definition for "attached" is "joined, fastened, or connected to something".

Parts connected by rope/string are, by definition, considered "attached" to the Robot. Therefore, G5 is not being violated if a mechanism is attached solely via rope/string.

Would leaving behind a trail of 20 feet of rope/string be considered an unnecessary risk of entanglement?

In addition to R3, Entanglement is also referenced in G12 (i.e. it is possible for a Robot to pass R3 in inspection, but still violate G12 during a Match).

< G12 > Don't destroy other Robots. But, be prepared to encounter defense. Strategies aimed solely at the destruction, damage, tipping over, or Entanglement of opposing Robots are not part of the ethos of the VEX Robotics Competition and are not allowed. If the tipping, Entanglement, or damage is ruled to be intentional or egregious, the offending Team may be Disqualified from that Match. Repeated offenses could result in Disqualification from the entirety of the competition.

< G12b > VEX Robotics Competition Tower Takeover is an interactive game. Some incidental tipping, Entanglement, and damage may occur as a part of normal gameplay without violation. It will be up to the Head Referee's discretion whether the interaction was incidental or intentional.

Note: A Robot which has expanded horizontally in an effort to obstruct the field, or is legally covering the top of a Tower in a solely defensive manner, should expect vigorous interactions from opponent Robots. Damage that is caused by opponent Robots pushing, tipping, or Entangling with them would not be considered a violation of < G12 >. Gratuitous damage or dangerous mechanisms may still be considered a violation of <R3>, <S1>, or <G1> at the Head Referee's discretion.

Bearing both R3 and G12 in mind, it is impossible to provide a blanket ruling that would cover all possible hypothetical Robot designs and/or on-field interactions. This is the type of question that requires a human observing the context of a specific Robot and/or Match to provide a judgment call.

So, we will provide the following overarching guidelines as starting points for Head Referees, inspectors, and Teams to use when determining whether a given design/interaction is legal.

1. When inspecting for R3, has the Team done their due diligence in the engineering design process to mitigate the risks of unnecessary Entanglement? While it is outside the scope of this Q&A to provide specific design advice, we would recommend that Teams wishing to utilize this strategy test different thicknesses, attachment methods, lengths, etc in different types of robot-to-robot interactions to minimize unnecessary, egregious, or intentional Entanglement.
2. Does the string on the field pose a likely or strategic possibility of Entangling another Robot? That is to say - is Entangling a primary function of the string (is it a "dragnet" mechanism), or is it simply a means-to-an-end?
3. Any Robot with a mechanism such as the one in the linked video would be taking on some risk of incidental Entanglement. Therefore, if incidental Entanglement occurs, was the Entanglement egregious or intentional? If it was not egregious or intentional, was it the result of vigorous interactions from opponent Robots (per the Note in G12)?

3035: Clarification on Expansion and Inspection process

12-Jan-2026

R3 SG2 SG3

A robot is capable of expanding outside of the 22"x22"x22" cube, but uses code to limit the expansion so that the robot will not over expand. (Ex: an arm fully rotating up and over the robot would be outside of the 22" height, but the code limits the rotation of the motor and therefore the upper limit of the arm.)

When considering expansion of the robot and the 22"x22"x22" cube, the Inspection Sheets says that

Robot does not expand larger than 22"x22"x22".

In the [Official answer to 2749](#), it was answered that

A Robot being capable of violating <SG2> does not mean it has violated <SG2>. A Robot can only violate <SG2> by exceeding the horizontal expansion limit during a Match. Some of your scenarios put the Team at greater risk of an <SG2> violation than others do. Physical or code blocks that prevent over-expansion are recommended over "planning not to do it."

My question is, should an inspector, head referee, and/or head inspector mark the robot as not passed because it can expand larger than 22", or should they make a note on inspection, and make the head referee aware of, the potential for over expansion?

[<SG2>](#) [<SG3>](#) [<R3>](#)

Answered by Game Design Committee

The intent is that inspectors and Head Referees help Teams avoid Violations by ensuring their Robot will not expand beyond the horizontal size limit during the match. If Teams can demonstrate that the Robot will not exceed a 22" cubic volume during the Match--whether through construction, code, or driver action--they have met this inspection requirement. If they later break an expansion rule during the Match, they will at least have been advised to consider and avoid it.

We'll make a note to clarify this on next season's inspection checklist. Thank you.

2747: Is inspection need to expand all part?

30-Jul-2025

R3 R5 SG1 SG2

If my robot has two expandable parts on the both side, and if I expanded only one of them, my robot still meet the size rule in SG1 and SG2. But if I expanded them both, I will be oversize of SG2, so I will never use this form in matching. So could I pass the inspection using the forms that will be used in matching, and do not need to expand all parts that I never use and will cause me violate the rules?

Answered by Game Design Committee

The 11" x 20" dimension can be thought of as a "snapshot" / "single-moment-in-time" definition. If the Robot you describe measures more than the 11" x 20" starting dimension at any time during a Match, it would be a Violation of rule [SG2](#). To avoid penalties at events, we suggest that you slowly take the Robot through its full range of motion and check its size in as many configurations as possible before presenting it at inspection or putting it on the field for a Match.

262: Roller Intakes and Entanglement

11-Mar-2019

R3 Other

Many of this year's robots have a ball intake like a paddle wheel wrapped in rubber bands or elastic (like the attached picture). The rubber bands often get entangled in other robots. How should a referee handle a match when the outcome is dependent on an entanglement? As reference the game manual defines entanglement as:

"Entanglement – A Robot status. A Robot is Entangled if it has grabbed, hooked, or attached to an opposing Robot or a Field Element."

That definition fits this scenario. In addition, rule R3c says:

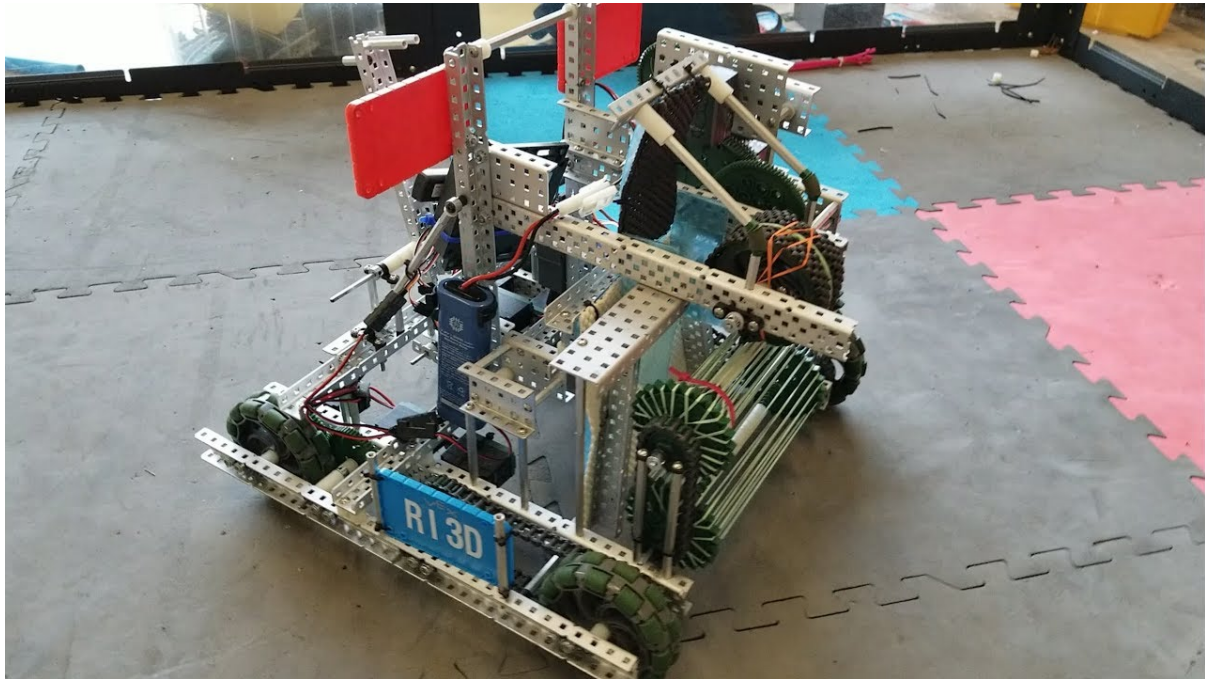
"The following types of mechanisms and components are NOT allowed: ... c. Those that pose an unnecessary risk of entanglement."

"Unnecessary" is the key word here. There has been no precedent for robots with this type of intake failing inspection (that I know of), and I wouldn't expect that to change now, but I'll still ask. Is this type of intake legal?

Beyond that the rules don't provide much guidance for referees to handle situations where two robots become entangled for a long period of time affecting the outcome of a match. This seems like a question that would have been asked early in the season, and maybe I'm missed it, but I don't see anything in the official Q&A.

The answer might depend on how the entanglement occurred. So here are three scenarios. In each scenario the Red robot has the roller intake that becomes entangled in the blue robot. The entanglement occurs with 30 seconds left in the match and the robots are unable to separate. Neither robot can move or score after being entangled. The final score is 16-15.

1. Red robot is playing defense and engages with blue when entanglement occurs.
2. Blue robot is playing defense. Red robot is playing offense, but does not attempt to protect intake from blue.
3. Red is offense, blue is playing defense aggressively. Red attempts to protect intake from blue, but still becomes entangled. Referee believes that blue purposefully become entangled.
4. (OK one more). Referee didn't see it happen. Red and blue both claim the other is at fault.



Answered by Game Design Committee

Is this type of intake legal?

Yes, the intake in the attached photo appears to be legal, in the context of this question regarding Entanglement hazards (i.e. we can't see if there are any 3D printed parts, or check if the rubber bands are of legal width, etc). The intent of <R3c> is to prohibit mechanisms which serve no primary purpose other than Entangling opponents (e.g. [a net](#)).

Beyond that the rules don't provide much guidance for referees to handle situations where two robots become entangled for a long period of time affecting the outcome of a match.

There are a several key rules that apply in this interaction. First, <G12b>:

b. VEX Robotics Competition Turning Point is an interactive game. Some incidental tipping, Entanglement, and damage may occur as a part of normal gameplay without violation. It will be up to the head referee's discretion whether the interaction was incidental or intentional.

And its related rule, <G13>:

<G13> Offensive Robots get the "benefit of the doubt". In the case where referees are forced to make a judgment call regarding a destructive interaction between a defensive and offensive Robot, or an interaction which results in a questionable rules violation, the referees will err on the side of the offensive Robot.

And finally, <G12c>:

c. A Team is responsible for the actions of its Robot at all times, including the Autonomous Period. This applies both to Teams that are driving recklessly or potentially causing damage, and to Teams that drive around with a small wheel base. A Team should design its Robot such that it is not easily tipped over or damaged by minor contact.

These rules all combine to form the following overarching guideline regarding "rubber band intakes":

- A Robot with this type of mechanism is assuming the potential risk of Entanglement.
- Teams who build mechanisms with Entanglement hazards are responsible for minimizing this risk, or accepting the potential inevitability of becoming Entangled with an opponent.

- A Robot with a "rubber band intake" who becomes Entangled with an opponent generally would not result in a <G12> violation on their opponent, because it is inherently the rubber band Robot's "fault" for assuming that risk, per <G12c>.
- However, that "fault" does not immediately flip to a <G12> violation on the rubber band Robot, because this intake is generally being used for an inherently offensive maneuver, per <G13>.
- In short, under normal gameplay (as judged by the Head Referee), there would be no violations on either Team.
- Of course, all of the above is superceded by <G12> if the Head Referee determines that the Entanglement was intentionally or egregiously initiated by either Robot (e.g. the rubber band Robot is defending and "intakes" their opponent with no Balls nearby or other reason to have the intake; or, the non-rubber-band Robot is defending and puts out a "claw" which is immediately ensnared by the intake).

2487: R20 and tape for tournament spot repairs

31-Jan-2025

R3 R9 R20

[<R20>](#)

Is the use of duct or gaffers tape (for example) forbidden for spot-repairing damage to a team's robot over the course of a tournament?

For example, many teams this year use plastic as a ramp into a conveyor mechanism from a ring intake. Over the course of battles over the positive corners and interactions with other robots and field elements, the plastic can snap or crack. In some instances we've seen mid tournament spot repairs of such damage with tape, because a team may not have had a spare piece of this plastic.

This does not appear to be a legal way to repair the damage after looking at:

<R20> A limited amount of tape is allowed. Robots may use a small amount of tape for the following purposes:

To secure any connection between the ends of two (2) VEX cables. To label wires and motors. To cover the backs of license plates (i.e., hiding the "wrong color"). To prevent leaks on the threaded portions of pneumatic fittings. This is the only acceptable use of Teflon tape. In any other application that would be considered a "non-functional decoration" per <R9>. As an aglet at the end of rope/string to prevent fraying.

<R9> Decorations are allowed. Teams may add non-functional decorations, provided that they do not affect Robot performance in any significant way or affect the outcome of the Match

Clearly if holding the broken pieces of plastic together, the tape becomes functional. Not performing this sort of spot repair though could easily end the day for the damaged robot/team. It seems unlikely such a repair conveys a strategic advantage over the original piece of plastic.

What should referees do in this situation? Should robots with tape repairs like this be removed from the field, and the team told to find another legal repair method before they may return? Or do they be allowed to compete with the bandaged robot the rest of the day, given its likely not in as good a shape as it could have been with fully intact plastic?

Answered by Game Design Committee

Is the use of duct or gaffers tape (for example) forbidden for spot-repairing damage to a team's robot over the course of a tournament?

Tape is illegal for uses beyond those described in [<R20>](#), including as a way to repair legal parts. Tape used for this purpose does not qualify as a non-functional decoration.

What should referees do in this situation? Should robots with tape repairs like this be removed from the field, and the team told to find another legal repair method before they may return?

Yes. Clauses C.i or E of rule [<R3>](#) would apply, and the Robot should not be allowed to participate in Matches until the Robot meets the requirements of all Robot rules.

2426: Strategic use of R3

10-Jan-2025

G1 G3 R3 T5 T6

[<G1>](#), [<G3>](#), [<R3>](#), [<T5>](#), [<T6>](#), Code of Conduct

If a team notices a problem with another team's robot, which would likely cause that team to fail a 'spot inspection', do they have an obligation to report that information in a timely manner? Or could they wait until it is strategically advantageous to do so?

Example: During qualification matches, Team A noticed that Team B's robot brain placement probably should not have passed inspection. Fixing the problem would have taken considerable time. Rather than approaching Team B and letting them know so they could fix their robot proactively, or informing the Head Referee directly, Team A waited until they were about to face Team B in a semi-final elimination match before pointing out the problem to the Head Referee.

Should Team B be allowed to play their match since they've played through all the qualification matches and it's at the Head Referee's discretion whether to conduct spot inspections? Or should their robot be removed from the field per R3, T5 & T6. Has Team A violated G1, G3, or the Code of Conduct?

Answered by Game Design Committee

We believe that this scenario falls under rule [<G1>](#), "Treat everyone with respect." If you see anyone breaking a rule at a Match Field, you should immediately bring it to the Head Referee's attention and let them handle it as they deem appropriate. If you see a Violation away from the Field, you should alert the Event Partner. Teams must use extreme caution when handling these situations, and should remember to remain respectful, civil, truthful, and professional. Once the matter has been reported to the Head Referee or the Event Partner, their decisions and ruling will be final as described in rules [<T1>](#) and [<T4>](#).

If a Head Referee believes a Team is reporting potential Robot rule Violations strategically, maliciously, or speculatively, it should be treated as a [<G1>](#) Violation and immediately brought to the attention of the Event Partner who should then consult with the REC Foundation Regional Support Manager as described in the Violation Notes for [<G1>](#).

If a Team's Robot is found to be in Violation of a Robot rule during an event, rule [<R3>](#) (specifically clauses C, D, & E) will apply.

In the specific case you describe, in which a Team believes another Team's Robot Brain is in an unsafe location, Head Referees must apply judgment to determine whether or not the reported Team should be allowed to continue without modifying the Robot.

2207: Modification and swapping of robot subsystems

21-Oct-2024

R1 R3

Hello!! this question is intended to find a universal interpretation of how you are allowed to modify or swap subsystems at an event. Mainly due to the vagueness in some rule wording and they lack of Q/A clarifications on subsystem 1/2. This aims to build on top of [<R1>](#), [<R3>](#) and Q/A 2130, 2134, 2183

- <https://events.vex.com/VIQRC/2024-2025/QA/2134>
- <https://events.vex.com/VIQRC/2024-2025/QA/2183>
- <https://events.vex.com/VIQRC/2024-2025/QA/2130>

1. when a team makes a legal modification to their robot, such as entirely switching out a subsystem 3 for skills vs teamwork. if they get fully inspected in both configurations at the start of comp. Q - would the team be okay to

switch back and forth between both configurations at will (implied from R3) or do they need to get reinspected every time they change it (from R1) even if it's a config inspected at the start of comp

2. what, if any, components of subsystem 1&2 may you modify or add/remove during a comp? (Q/A 2183 and 2134 says that wheel and gear changes are okay. what about things such shafts, motors, brain, sensors used for field navigation, half a chassis, the entire chassis frame getting rebuilt, a guide to align with the goal, etc.) Basically, what can you do to those systems and whats the limit. 2.1) also is the rule intending for partial modification to be legal but swapping out the ENTIRE system be okay? a 2.2) also, is swapping out a subsystem 1/2 for an identical replacement that was either built at home OR built at comp be legal?
3. if a robot has a guide on the robot that interacts with the floor and the field elements at the floor level, Q- would the guide be considered part of subsystem 1?

Answered by Game Design Committee

1. would the team be okay to switch back and forth between both configurations at will (implied from R3) or do they need to get reinspected every time they change it (from R1) even if it's a config inspected at the start of comp

As described in clause B of [<R3>](#), "All possible functional Robot configurations must be inspected before being used in competition. This especially pertains to modular or swappable mechanisms (per <R1>) and Match starting configurations/sizes (per <R4>)." There is no requirement that a Robot be reinspected each time a Robot is revised to match a pre-inspected configuration.

2. what, if any, components of subsystem 1&2 may you modify or add/remove during a comp? 2.1) also is the rule intending for partial modification to be legal but swapping out the ENTIRE system be okay? 2.2) also, is swapping out a subsystem 1/2 for an identical replacement that was either built at home OR built at comp be legal?

As described in rule [<R1>](#), "... if you are swapping out an entire subsystem 1 or 2, you have now created a second Robot and have Violated this rule." There is no rule against swapping out a component or portion of subsystems 1 or 2. We are unable to make a blanket ruling that will apply to all cases.

3. if a robot has a guide on the robot that interacts with the floor and the field elements at the floor level, would the guide be considered part of subsystem 1?

It could be considered part of either subsystem 1 or subsystem 3, but if its primary purpose is alignment rather than navigating the playing field it would be considered part of subsystem 3 in most cases.

2134: Modification of Subsystems

15-Sep-2024

R3

[<R3>](#)

If a team shows at inspection a robot that has direct drive for autonomous skills matches, but they change their gear ratio for driving skills and teamwork matches to increase their robot speed. Is that modification legal during the tournament? Although the changes may be considered as "subsystem 2", it modifies in a significant way how the robot drives through the field.<R3>

Answered by Game Design Committee

The modification you describe would be legal during a tournament. Per Clauses A & B of rule <R3>, the Robot must be inspected in both configurations.

2130: Modifications to Subsystem 3 and multiple inspections during the competition

10-Sep-2024

R3

If a team shows at inspection a robot that has 25in arms (both sides) to accomplish the "touch the field perimeter" rule during autonomous skills matches, but they totally remove those arms for driving skills and teamwork matches. Is that modification legal during the tournament? Although the changes may be considered as "Subsystem 3", it modifies in a significant way how the robot drives through the field. <R3>

Answered by Game Design Committee

The modification you describe would be legal under rule <R1> as a change to subsystem 3. Per Clauses A & B of rule <R3>, the Robot must be inspected in both configurations.

1986: Clarification R3

2-Mar-2024

R3

<R3> states:

a. Significant changes to a Robot, such as a partial or full swap of Subsystem 3, must be re-inspected before the Robot may compete again. b. All possible functional Robot configurations must be inspected before being used in competition. This especially pertains to modular or swappable mechanisms (per <R1>)...

This seems to suggest that it would be legal have a triball shooter mechanism (Subsystem 3) on the robot for skills, and then remove the triball shooter for matches. Is this correct? Our team is interested in doing this since the triball shooter is not used in matches.

If both configurations (shooter and non-shooter configurations) are shown and approved at the initial tournament inspection, does the robot need to be re-inspected every time the change is made during the competition? The skills run is often done between matches and it may be difficult to get re-inspected before the start of the next match.

Answered by Game Design Committee

Please review the [Q&A Usage Guidelines](#) before posting, specifically point 2, "Read and search existing Q&As before posting." We believe the following previously answered post ([Q&A 1871](#)) answers your question; if it does not, please feel free to rephrase and re-submit.

1931: SG2 - Horizontal Expansion is limited during a Match

4-Feb-2024

R3

<SG2> At a recent Elementary School only event, during a driving skills match, the "Head Referee" determined the robot on the field expanded beyond the 11" x 20" horizontal limits as set forth in <SG2> when an arm was raised that had a device attached to transfer blocks from the playing field to one of the goals even though it had "passed" inspection at

check-in. The team was disqualified and received a zero score for that particular skills challenge. Was the referee correct in disqualifying that team? Also, pursuant to <R3e>, could/should that team have been required to remedy their situation (exceeding horizontal expansion limits during a match) and be reinspected prior to participating any other (skills or team challenge) matches?

Answered by Game Design Committee

This scenario is addressed by rule [<R3>](#), specifically clauses "d" and "e":

d. Robots which have not passed inspection (i.e., that are in Violation of one or more Robot rules) will not be permitted to play in any Matches until they have done so. <T6> will apply to any Matches that occur until the Robot has passed inspection.

e. If a Robot has passed inspection, but is later found to be in Violation of a Robot rule during or immediately following a Match, then they will be Disqualified from that Match and <R3d> / <T6> will apply until the Violation is remedied and the Team is re-inspected.

1871: Clarification of Q/A 1847

12-Jan-2024

R1 R3

[<R1>](#) Good Afternoon, Q/A 1847 states that swapping motors between mechanisms is legal. However, Is it acceptable to have a two completely separate mechanisms for launching triballs (A flywheel and a slapper) that are modular.

The red box of R1 states "To help determine if a Robot is a "separate Robot" or not, use the subsystem definitions found in <R1>. Above that, use common sense as referenced in <G3>. If you can place two Robots on a table next to each other, and they look like two separate legal/complete Robots (i.e., each has the 3 subsystems defined by <R1>), then they are two Robots. Trying to decide if changing a screw, a wheel, or a microcontroller constitutes a separate Robot is missing the intent and spirit of this rule." After swapping the launching mechanisms the robot looks the same but instead of a flywheel it will have a slapper on the back. Would this meet the definition of looking like two separate robots or will the change be negligible enough to be viewed as one robot?

Earlier in R1 it states "Given the above definitions, a minimum Robot for use in any VEX Robotics Competition event (including Skills Challenges) must consist of subsystems 1 and 2 above. Thus, if you are swapping out an entire subsystem 1 or 2, you have now created a second Robot and have Violated this rule." This specifically excludes Subsystem 3 which is the subsystem that the launching mechanisms would fall in to. Is this intentional to allow for a swappable subsystem 3?

Also in R3b it states "All possible functional Robot configurations must be inspected before being used in competition. This especially pertains to modular or swappable mechanisms (per <R1>) and Match starting configurations/sizes (per <R4>)." This excerpt uses the words "Modular or swappable"

Is it correct to assume that you can have a modular launching mechanism as long as the main visual of the robot is similar and it is reinspected and passes?

Thank You

Answered by Game Design Committee

[<R1>](#) Good Afternoon, Q/A 1847 states that swapping motors between mechanisms is legal. However, Is it acceptable to have a two completely separate mechanisms for launching triballs (A flywheel and a slapper) that are modular.

Yes.

Is it correct to assume that you can have a modular launching mechanism as long as the main visual of the robot is similar and it is reinspected and passes?

We're not sure what you mean by "the main visual of the robot is similar," but a Robot can have and use a modular launching mechanism as long as both mechanisms meet all Robot rules and the Robot passes inspection in all configurations.

1781: Plastic

21-Nov-2023

R3

[<R3>](#)

hi, are teams allowed to use the large field element plastic sheet on robot?

Answered by Game Design Committee

No. The large field element plastic sheet is not legal for use on VIQRC Robots. Rule [<R6>](#) provides full guidance for legal Robot components, and a link to the [VIQRC Legal Parts Appendix](#). The legal plastic sheets are listed below and in that appendix.

- 228-2500-2710 - 2x12 Plastic PET Sheet
- 228-2500-2711 - 6x6 Plastic PET Sheet
- 228-2500-2712 - 6x12 Plastic PET Sheet
- 276-7735-710 - 2x12 PET Sheet
- 276-7735-711 - 6x6 PET Sheet
- 276-7735-712 - 6x12 PET Sheet

150: Clarification on damage and entanglement

19-Nov-2018

G12 R3

Is it legal for a team to make a mechanism that is solely built to purposefully grasp, grapple, or entangle their teammate robot? If this mechanism, as a second hand as a backup strategy, gets used to purposefully grasp, grapple, or entangle opponents robots while center parked, would this also be a legal strategy?

Answered by Game Design Committee

As always, it is impossible to issue a blanket ruling on a hypothetical design. In addition to the first line of G12, the other main rule to consider would be R3, quoted here for reference:

<R3> The following types of mechanisms and components are NOT allowed:

- a. Those that could potentially damage playing field components.
- b. Those that could potentially damage other competing robots.
- c. Those that pose an unnecessary risk of entanglement.

Any mechanism which is designed primarily to Entangle partner Robots, and secondarily to Entangle opponent Robots, could be at risk of violating R3b and/or R3c, depending on the specific nature of the mechanism.

As mentioned in [this Q&A post](#), there are no rules against Entanglement between Robots on the same Alliance. If attempting such a strategy, the best way for Teams to avoid potential issues with R3 and/or G12 would be to protect these hypothetical mechanisms from opponent interaction, or otherwise proactively ensure that they are primarily used for offense, not defense.

15: Possible rules contradiction between <G12> and <R3>

24-May-2018

Center Platform G12 R3

After reading through the manual some more, I have found that there is a possible contradiction in the rules, specifically regarding damage to robots when contesting the center platform. Rule <G12> note 1 states:

Teams who attempt to utilize the Center Platform should expect to encounter vigorous interactions from opponent Robots who are attempting to do the same. Engaging in this gameplay element of VRC Turning Point constitutes an acknowledgement of the risk of incidental tipping or damage, as covered by <G12b> and <G12c>, and waives the protection that is offered by <G12> against destructive interactions.

Which means that the intentional damage of robots is expected and allowed when contesting the center platform. However, rule <R3> states that:

The following types of mechanisms and components are NOT allowed: b. Those that could potentially damage other competing robots.

So it seems the possible contradiction is rule <G12> stating that damaging a robot while contesting the center platform is allowed, while rule <R3> states that mechanisms that could damage robots are not allowed.

My question would be is this a mistake in the rules, or is this stating that we may not make mechanisms *specifically* for damaging robots, and have to use existing mechanisms and/or drive power to contest and coincidentally damage opposing robots on the center platform?

Answered by Game Design Committee

My question would be is this a mistake in the rules, or is this stating that we may not make mechanisms specifically for damaging robots, and have to use existing mechanisms and/or drive power to contest and coincidentally damage opposing robots on the center platform?

Your latter interpretation is correct. R3 still exists independently of G12. For example, picture a "robot puncher" mechanism that served no purpose other than to hit opponents, or a piece of metal that has been sharpened to a point and could cut an opponent's wires. These would be considered mechanisms that could damage robots, and would not be legal.

On the other hand, picture a Robot with a strong enough drive base to push an opponent off of the Center Platform, and the resulting fall causes damage to the opponent. This is the type of tipping or damage that is covered by the G12 note, and would likely not result in a violation.

Most Robot rules could be thought of as "inspection rules" - a robot puncher or a sharp blade should be recognized during inspection as violations of R3, and would never even take the field to risk damaging an opponent (on the Center Platform or elsewhere).

1417: Multiple subsystem 3s during programming

31-Jan-2023

R3

<R3>

From the language in R3, a team can have multiple subsystem 3s inspected to be used in a competition.

a. Significant changes to a Robot, such as a partial or full swap of Subsystem 3, must be re-inspected before the Robot may compete again. b. All possible functional Robot configurations must be inspected before being used in competition.

My question is, once all configuration have passed inspection, can a team move between those configurations during the course of the competition? Specifically, during a programming skills run, can a team attach a subsystem 3 attachment partway through the one minute? My team has a program to get the blue dispensers, then attaches parts for the rest of the challenge. Is that allowed?

Answered by Game Design Committee

Rule [<R3>](#) is intended to allow Teams to swap out subsystem 3 on their Robot between Matches at an event, but not during a Match.

Per rule [<G10>](#), Robots may not intentionally detach parts or leave mechanisms on the Field during any Match. Based on the intent and spirit of this rule, Teams may not remove or add attachments from or to their Robot during a Match.

1378: Removing parts between teamwork and skills challenges

10-Jan-2023

R3

[<R3>](#) After a robot has been inspected for teamwork can you remove one part for the skills challenge ?

Answered by Game Design Committee

Thank you for your question. Provided the change to a Robot does not violate rule [<R1>](#) and that the Robot is inspected/reinspected in both configurations as described in clauses A and B of rule [<R3>](#), this change would be permissible.