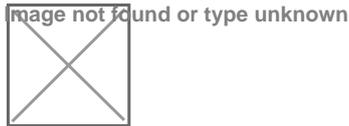# Q&A

VRC 2020-2021: Change Up

Tagged: SG8

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 Change Up 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 Change Up rules questions.

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<SG8> Interplay Between Momentary Possession and Stopping All Other Robot Actions

This question is asked on behalf of a fellow VEX Forum user.

This is a follow-up to Q&A 608 and, to a lesser extent, Q&A 601. The ruling given here may also be relevant to a ruling on Q&A 597, whenever one is issued.

The relevant portions of <SG8> are repeated below:

> **Possession is limited.** *Robots* may not have greater?than?momentary *Possession* of more than three (3) *Balls* of its opposing *Alliance*'s color at once. When two *Robots* from the same *Alliance* are working in tandem and blocking *Balls*, those *Robots* may not *Possess* a total of more than six (6) *Balls* of its opposing *Alliance*'s color at once.
>
> *Robots* that violate this rule must stop all *Robot* actions except for those actions that are attempting to remove the excess *Ball*.

Suppose a *Robot* is in *Possession* of more than three (3) *Balls* of its opposing *Alliance*'s color **for a momentary period of time** before the excess *Ball* is ejected.

Which of the following interpretations, if either, is correct?

- The *Robot* must **immediately** stop all *Robot* actions except for those actions that are attempting to remove the excess *Ball* **as soon as *Possession* of the excess *Ball* begins, even though the *Possession* of the excess *Ball* ultimately proves to be momentary in total duration**.

- Because the *Possession* of the excess *Ball* is momentary, the *Robot* **does not** need to stop all *Robot* actions except for those actions that are attempting to remove the excess *Ball*. That is, the *Robot* may continue scoring or performing other actions as desired while momentarily *Possessing* the excess *Ball*. By extension, this interpretation would imply that the *Robot* must stop all *Robot* actions except for those actions that are attempting to remove the excess *Ball* **only after the *Possession* of the excess *Ball* becomes greater-than-momentary**.

Answered by Game Design Committee

> Suppose a *Robot* is in *Possession* of more than three (3) *Balls* of its opposing *Alliance*'s color **for a momentary period of time** before the excess *Ball* is ejected.
>
> **Which of the following interpretations, if either, is correct?**
>
> - The *Robot* must **immediately** stop all *Robot* actions except for those actions that are attempting to remove the excess *Ball* **as soon as *Possession* of the excess *Ball* begins, even though the *Possession* of the excess *Ball* ultimately proves to be momentary in total duration**.

This interpretation is correct.

We will not be providing a blanket definition for a length of time that is considered "momentary", nor will we be defining how Robot actions (which are not related to ejecting the excess Ball) must be stopped. If a Head Referee finds themselves in a scenario where they must make a judgment call on the severity of an SG8 violation, we would reiterate the remainder of SG8 which was not quoted in your question:

> Minor violations of this rule that are not Match Affecting will receive a warning. Match Affecting offenses will result in a Disqualification. Teams that receive multiple warnings may also receive a

Disqualification at the Head Referee's discretion.

It is also important to remember that G3 always applies when a Head Referee is attempting to judge an edge-case scenario:

> <G3> Use common sense. When reading and applying the various rules in this document, please remember that common sense always applies in the VEX Robotics Competition.

<SG8> Possession

SG8

QA 601 asked a similar question regarding to the definition of momentary already, so I will start on the other part.

> <SG8> Possession is limited. Robots may not have greater-than-momentary Possession of more than three (3) Balls of its opposing Alliance's color at once. When two Robots from the same Alliance are working in tandem and blocking Balls, those Robots may not Possess a total of more than six (6) Balls of its opposing Alliance's color at once.
>
> Robots that violate this rule must stop all Robot actions except for those actions that are attempting to remove the excess Ball.
>
> Minor violations of this rule that are not Match Affecting will receive a warning. Match Affecting offenses will result in a Disqualification. Teams that receive multiple warnings may also receive a Disqualification at the Head Referee's discretion.

a) Is it a correct interpretation that the first and second sentence stands concurrently, which means that each robot may not possess more than 3 opponent balls at any time? Or is the first sentence only applied when two robots are NOT working in tandem and blocking balls? Does the second sentence only apply when blocking balls, or do they apply when there are balls inside robots as well?

In other words, are there any circumstances where one robot is allowed to possess more than 3 opponent balls at any given point?

b) Is it a correct interpretation that if the ball has been determined to have been greater-than-momentary possessed by the other team, then a violation has occurred, regardless of whether the other robot "stop all Robot actions except for those actions that are attempting to remove the excess Ball"? Or in the other word, is the actions after being determined in possession relevant in determining whether a violation has occurred?

c) In the case where there are multiple momentary possession of same/different opponent balls, do these add up to count as a "greater-than-momentary Possession"? If so, under what time frame would they need to be under?

Thanks,

> **Answered by Game Design Committee**
>
> > a) Is it a correct interpretation that the first and second sentence stands concurrently, which means that each robot may not possess more than 3 opponent balls at any time? Or is the first sentence only applied when two robots are NOT working in tandem and blocking balls? Does the second sentence only apply when blocking balls, or do they apply when there are balls inside robots as well?
> >
> > In other words, are there any circumstances where one robot is allowed to possess more than 3 opponent balls at any given point?
>
> No. At no point in any circumstance is one Robot allowed to Possess more than three opposing Alliance Balls for a greater-than-momentary amount of time.
>
> SG8 includes a "red box", which helps to explain this further:

The intent of this rule is to prohibit each Robot from keeping more than 3 of the opposing Balls from being used by the opposing Alliance. It is anticipated that two Robots from the same Alliance will work together to Possess the opposing Alliance's Balls. When those Robots do this, as long as they are not Possessing more than 6 of the Opposing Alliance's Balls in total, and each Robot is not carrying or controlling more than 3 Balls, these Robots are not in violation of <SG8>.

The intent of the second sentence of SG8, and the red box explanation, is to reduce the need for Head Referees to "track" which Balls are being Possessed by which Robot, in a scenario where both Robots could satisfy the conditions for Possession.

b) Is it a correct interpretation that if the ball has been determined to have been greater-than-momentary possessed by the other team, then a violation has occurred, regardless of whether the other robot "stop all Robot actions except for those actions that are attempting to remove the excess Ball"? Or in the other word, **is the actions after being determined in possession relevant in determining whether a violation has occurred**?

[It seems like the verbiage of your two questions may be in conflict, so for clarity's sake, the following answer is intended for your second (bolded) question.]

Yes. Actions following a momentary excess Possession do determine whether a violation has occurred. If the following action is anything other than ejecting the excess Balls, then there has been a violation of <SG8>. This includes if the following action is inaction.

This could be viewed as an explicit clarification of "Match Affecting" in the context of this rule. Due to the dynamics of VRC Change Up, a momentary excess Possession could occur where would be impossible for a Head Referee to determine whether the action was Match Affecting or not. Therefore, momentary excess Possessions (that are immediately followed by ejecting the excess Ball) are an explicitly permitted exception to the Possession limit.

c) In the case where there are multiple momentary possession of same/different opponent balls, do these add up to count as a "greater-than-momentary Possession"? If so, under what time frame would they need to be under?

We are not going to provide a time frame during which Balls must be ejected; it should be unquestionably apparent to a Head Referee that the Robot in question has stopped all actions that are not in immediate pursuit of ejecting the Ball.

Teams who utilize this rule as a core part of their gameplay strategy should expect additional scrutiny from Head Referees, as they could be at risk of repeated warnings (that escalate to a Disqualification at the Head Referee's discretion), or of violating R29.

<R29> There is a difference between accidentally and willfully violating a Robot rule. Any violation of Robot rules will result in a Team being unable to play until they pass inspection (per <R3d>). In addition, **Teams who intentionally or knowingly circumvent or violate rules to gain an advantage over their fellow competitors are in violation of the spirit and ethos of the competition.** Any violation of this sort may be considered a violation of <G1> and/or the REC Foundation Code of Conduct.

Clarification of "Momentary" Possession

SG8 Referee Decisions

This question is posted based on a [VEX Forum thread](#) and on behalf of a frequent volunteer in Arizona.

According to <SG8>:

Robots may not have greater-than-momentary Possession of more than three (3) Balls of its opposing Alliance's color at once.

Since "momentary" is not defined, would the following scenario be permitted within the rules?

Red *Robot* approaches a *Goal* containing one or more blue *Balls* while currently in *Possession* of three blue *Balls*. Red robot descores the *Balls* in the *Goal*, so that it is momentarily holding more than three blue *Balls*. Then, the *Robot* immediately ejects the additional blue *Balls*, so that the *Possession* of greater than 3 blue *Balls* is around 5 seconds long.

Is there any rule-of-thumb that referees should follow when considering similar scenarios?

> ### Answered by Game Design Committee
>
> The full text of SG8 reads as follows, with a portion bolded for emphasis:
>
>> <SG8> Possession is limited. Robots may not have greater-than-momentary Possession of more than three (3) Balls of its opposing Alliance's color at once. When two Robots from the same Alliance are working in tandem and blocking Balls, those Robots may not Possess a total of more than six (6) Balls of its opposing Alliance's color at once.
>>
>> **Robots that violate this rule must stop all Robot actions except for those actions that are attempting to remove the excess Ball.**
>>
>> Minor violations of this rule that are not Match Affecting will receive a warning. Match Affecting offenses will result in a Disqualification. Teams that receive multiple warnings may also receive a Disqualification at the Head Referee's discretion.
>
> Provided that the Robot in question immediately ceases all other actions (e.g. driving, scoring, lifting a mechanism, intaking, etc), and ejects the extra Balls, this scenario would be legal.
>
>> Is there any rule-of-thumb that referees should follow when considering similar scenarios?
>
> When a VRC-specific definition is not available, a standard dictionary definition should be used. The Oxford definition of "momentary" is "lasting for a very short time; brief".
>
> It will be at the Head Referee's discretion if a given Robot has exceeded a "momentary" violation, if the violation is Match Affecting, and/or if the Team has received multiple warnings prior to this violation.

Wallbot's Possession of Balls

SG8 Referee Decisions

> SG8: Robots may not have greater-than-momentary Possession of more than three (3) Balls of its opposing Alliance's color at once. When two Robots from the same Alliance are working in tandem and blocking Balls, those Robots may not Possess a total of more than six (6) Balls of its opposing Alliance's color at once.

SG8 establishes a Robot may not have Possession of more than 3 of the opposing alliance's balls at one time. The definition of Possession is the following:
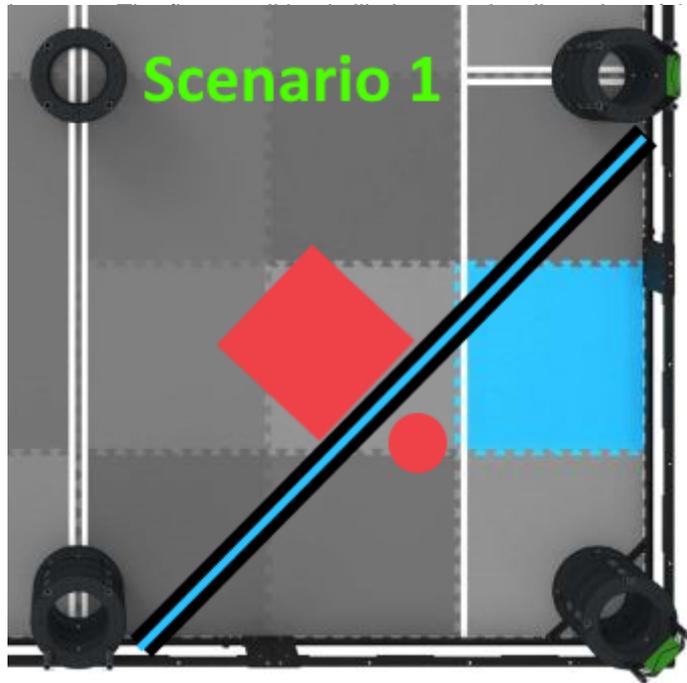
> Possession – A Robot is considered to be Possession a Ball if a Ball is in an unscored position and either of the following criteria are met:
>
> • The Robot is carrying, holding or controlling the movement of a Ball such that if the Robot changes direction, the Ball will move with the Robot. Pushing/plowing Balls is not considered Possession, however using concave portions of your Robot to control the movement of Balls is considered Possession.
>
> • The Robot is blocking the opposing Robot's access to Balls that are located between Goals along the field perimeter.* Blocking access to Balls is considered Possessing those Balls only if the opposing Robot is attempting to make contact with those Balls from close range* **AND** *those Balls are at least partially within the width of the Goals between the Goals*. Robots on the same Alliance working in tandem to block access to Balls would share the Possession of the Balls. See <SG8> for Possession limits.

Emphasis added. A wallbot that has sectioned off a portion of the field does not meet the criteria for possession in the first bullet point as the wallbot (assuming it is stationary) is not carrying, holding, or controlling the movement of a ball. The focus of this question centers around the second bullet point.

There are two conditions under the second point. The "and" qualifier necessitates that both conditions must be met in order to be considered in possession of a ball.

The first condition is that the opposing robot has to be attempting to make contact with a ball from close range and the second is that a ball is partially between the width of two goals along the field perimeter. The second condition is easy to [...] Head Referee as to what is considered "from close range." [...] recedent for Head Referees to base their decisions upon.

An image of scenario 1 can be found at the bottom of this

post. A blue robot has deployed a stationary wall in the corner. The wall is tall enough so that no robot can reach over the wall and make contact with balls. A red ball is directly behind the blue wall. A red robot is directly on the other side of the wallbot. The Red robot is attempting to make contact with the red ball and is within close range of the red ball. However, the red ball is clearly not between the width of the goals along the field perimeter. Therefore, the blue robot is not in possession of the red ball. Is this interpretation of scenario 1 correct?
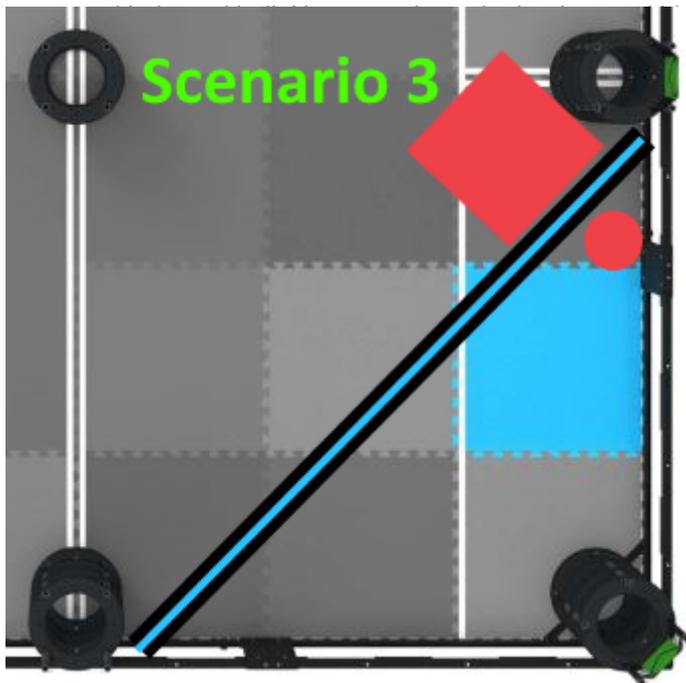
Scenario 2
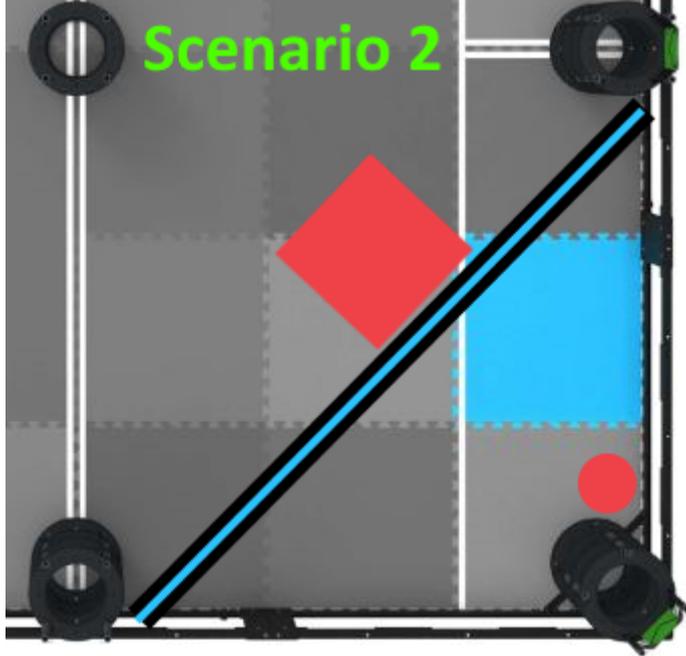
An image of scenario 2 can be found at the bottom of this

post. A blue robot has deployed a stationary wall in the corner. The wall is tall enough so that no robot can reach over the wall and make contact with balls. A red ball is clearly between the width of two goals along the field perimeter. A red robot is on the other side of the wall but is at least a full tile's length away from the ball. The Red robot is attempting to make close range of the red ball. Therefore, the blue robot is not 2 correct?

An image of scenario 3 can be found at the bottom of this

post. A blue robot has deployed a stationary wall in the corner. The wall is tall enough so that no robot can reach over the wall and make contact with balls. A red ball is clearly between the width of two goals along the field perimeter and a red robot is directly on the other side of the wall. The red robot is attempting to make contact with the red ball. Even though the red robot is unsuccessful in making contact with the red ball, it is within close range and attempting to make contact. Therefore, the blue robot is in possession of the red ball as both conditions are met. Is this interpretation of scenario 3 correct?

Answered by Game Design Committee

Thank you for the detailed question, and for your patience while we reviewed the rules in question. <SG8> and the

definition of Possession have been modified in the August 17th Game Manual Update to address this confusion. If more clarification is still needed, please feel free to rephrase and re-submit.

Interpreting <SG8>

Caps   SG8

If in the elimination matches, in the act of scoring a cap on a pole, the cap leaves the field either due to defense or driver error, should that result in a disqualification for the robot attempting to score the cap? At a recent local tournament, the rules were set in such a way that if you had dropped a cap off the field at any point during the qualifier matches and then dropped a cap during the eliminations, you would be instantly disqualified regardless of if the offense was match affecting or not. Is this a proper interpretation of the rule sg<8> or not? Thanks

Answered by Game Design Committee

The full text of <SG8> reads as follows:

> <SG8> Keep Game Objects in the field. Though it is expected that some Game Objects may unintentionally leave the field during Match play, Teams may not intentionally or strategically remove Game Objects from the field.
>
> a. Balls that leave the field during regular Match play, accidentally or intentionally, will not be returned to the field.
>
> b. Caps that leave the field during regular Match play will be returned to the nearest foam tile, Low Scored for the opposite Alliance color of the last Robot to contact it. If a referee cannot determine which Robot was the last to contact the Cap, then the Cap will not be returned to the field.
>
> An intent of this rule is to prevent Robots from "knocking" Caps out of the field to remove them from Posts. Any strategic, intentional, or repeated removal of Game Objects from the field would be considered a violation of this rule.
>
> Minor violations of this rule that do not affect the Match will result in a warning. Match Affecting offenses will result in a Disqualification. Teams that receive multiple warnings may also receive a Disqualification at the Head Referee's discretion.

"Strategic, intentional, or repeated" is the key phrase to bear in mind. It is up to the Head Referee to determine if the way in which the Caps were removed from the field was intentional or strategic. Similarly, the exact definition of "repeated" will also be at Head Referee discretion, depending on the context of the Match and the event.

Generally, a Cap falling outside of the field due to defensive interactions would be protected by <G11>, although it is impossible to issue a blanket ruling that would cover all possible scenarios.

> <G11> You can't force an opponent into a penalty. Intentional strategies that cause an opponent to violate a rule are not permitted, and will not result in an infraction on the opposing Alliance.

See [this Q&A](#) and [this Q&A](#) for more thoughts on this topic.

What happens to a cap if sg8 is violated?

Caps   SG8

According to Sg8 balls can not be shot at caps on posts So let's say blue has a scored cap on a post and red comes over and shoots a ball and the cap falls off, will the cap be placed back on the post scored for blue due to the violation?

Answered by Game Design Committee

First, to be clear, shooting Balls at Caps is not considered a legal strategy. Please see this relevant similar Q&A

> will the cap be placed back on the post scored for blue due to the violation?
>
> There is no precedent in the Game Manual for "un-doing" an action mid-Match because the action was the result of a rules violation. Instead, the Head Referee should determine if the action was Match Affecting, and assign a warning or a Disqualification accordingly.
>
> However, please note in the linked Q&A above, this particular action should result in an <S1> violation and a potential Disqualification at the Head Referee's discretion, regardless of if the action was Match Affecting or not.

Andy Zieglmeier Event Partner

Caps SG8

Is it an option for the head referee to clarify expectations of SG8 before qualification matches begin? This would be in reference to the following - The intent of this rule is to prevent Robots from "knocking" Caps out of the field to remove them from Posts. Any strategic, intentional, or repeated removal of Game Objects from the field would be considered a violation of this rule.

Examples of clarification would be-

1. If your robot leverages a Pole scored Cap on the bottom side, from the field side only, this would be considered a violation of the note listed above. Reason for this is due to leverage from the field side only would result in knocking a Cap out of the field in most cases. Teams executing this move and "knocking" Caps out of the field, in this manner, will receive one warning and then be logged.
2. It is not possible to assume the intent of a robot to correctly de-score a Cap from a Pole in all scenarios. With that said, a robot that is correctly attempting to take possession of a Cap to bring it back to the field drops it out of the field will be notified that multiple attempts in that nature will be viewed as "knocking" Caps out of play.

My reasoning for asking for this clarification is due to volunteering as a referee or emcee at multiple tournaments this year and having teams knock two or more Caps out of the field and saying that they were trying to bring it back into the field. In clarifying the head referees expectations, this lowers the potential of alliances disagreeing with how the match is called.

It is not my belief that the game designers desired to see the Poles empty at the end of matches. I have not seen a robot be able to score a Cap on a Pole anywhere near the same time it takes to knock that scored Cap out of the field.

> **Answered by Game Design Committee**
>
> The VEX Robotics Competition does include some rules which are not inherently black-and-white, and rely on some amount of contextual referee interpretation for heat-of-the-moment decisions. See this Q&A for some more discussion on this topic.
>
> With this in mind, it is reasonable and standard practice for a Head Referee to hold a "Driver's Meeting" to review and/or clarify key rules prior to an event.
>
> However, it is imperative that any clarifications made during this pre-event meeting are in accordance with the guidance given in official materials like the Game Manual, the Referee Training Videos, the Referee Guide, and the Q&A. Augmenting these guidelines with additional qualifications or criteria would not provide a consistent experience for teams across all events.
>
> Much like we avoid making "blanket" assumptions in the Q&A for these context-specific rules, we would advise Head Referees to avoid making "blanket" assumptions for their entire event. Due to the dynamics of head-to-head robotics games, and the creativity of VRC teams, it is impossible to account for all scenarios that you may encounter.
>
> To directly comment on your specific examples:
>
>> If your robot leverages a Pole scored Cap on the bottom side, from the field side only, this would be considered a violation of the note listed above. Reason for this is due to leverage from the field side

only would result in knocking a Cap out of the field in most cases.

This is an example of a blanket statement, "We will always interpret X as Y because it can only be Z", which may not always be true. It would not be in your (or the teams') best interest to provide this assumption.

> a robot that is correctly attempting to take possession of a Cap to bring it back to the field drops it out of the field will be notified that multiple attempts in that nature will be viewed as "knocking" Caps out of play.

This is a better example of a guideline that is in line with <SG8> as it is written. A portion of <SG8> is quoted below, bolded for emphasis.

> Any strategic, intentional, **or repeated** removal of Game Objects from the field would be considered a violation of this rule.

Removal of Game Objects from the field does not have to be strategic, intentional, AND repeated; "repeated" alone can be considered a violation of this rule. This is a good case where the Head Referee should keep track of the warnings in their [Match Anomaly Log](#) and watch for repeated instances from the same Team.

Clarification on SG8 :Caps de-scored which leave the field

Caps   SG8

Please clarify the following situation as related to caps leaving the field in an attempt to de-score. Is this the correct procedure given the rules "as written"

SG8 says - Match Affecting offenses will result in a Disqualification.

1. Any time a cap is knocked off a post by an opposing alliance and falls out of the field, the referees need to make a mental note and verbally warn the offending team.
2. At the end of the match, the referees need to determine if the de-scored cap(s) affects the outcome of the match. Referees should score the match with the cap (or caps) on the post first. Then referees need to score the match with the caps de-scored. If the de-scored caps affects which alliance wins, the offending de-scoring team will be disqualified.
3. For clarification, is the offending team disqualified? Or is it the alliance disqualified?

SG8 also says: Teams that receive multiple warnings may also receive a Disqualification at the Head Referee's discretion.

1. Please define multiple. The dictionary says several which is also vague at best. Is multiple two or more? Is multiple three or more? Is multiple 15 times? Please replace the word multiple with a number that is not open to interpretation.

> **Answered by Game Design Committee**
>
> > 1.
> > Any time a cap is knocked off a post by an opposing alliance and falls out of the field, the referees need to make a mental note and verbally warn the offending team.
> >
> > 2.
> > At the end of the match, the referees need to determine if the de-scored cap(s) affects the outcome of the match. Referees should score the match with the cap (or caps) on the post first. Then referees need to score the match with the caps de-scored. If the de-scored caps affects which alliance wins, the offending de-scoring team will be disqualified.
>
> These are both correct interpretations.
>
> > 3. For clarification, is the offending team disqualified? Or is it the alliance disqualified?

Please see the definition of Disqualification, in the Tournament section of the manual, for reference:

> Disqualification – A penalty applied to a Team for a rules violation. When a Team is Disqualified in a Qualifying Match, they receive zero (0) WP, AP, and SP, and the opposing Alliance receives two (2) WPs. When a Team is Disqualified in an Elimination Match, the entire Alliance is Disqualified and they receive a loss for the Match.

So, the answer to your question depends if the offense occurs in a Qualification Match or an Elimination Match.

> SG8 also says: Teams that receive multiple warnings may also receive a Disqualification at the Head Referee's discretion. Please define multiple. The dictionary says several which is also vague at best. Is multiple two or more? Is multiple three or more? Is multiple 15 times? Please replace the word multiple with a number that is not open to interpretation.

The word "multiple" is used throughout the manual intentionally, to provide referees with the flexibility to interpret and apply a ruling based on the context of their event. Two warnings for egregious actions, or warnings that are met with uncivil reactions, should bear more weight than two warnings for accidental actions, or warnings that are met with respectful discourse.

<SG8> Keep Game Objects in FIeld

SG8

Depending on how taut the net is installed, is it conceivable that balls can get caught in the net. If they do, will these balls be released by the refs back into the playing field or are they considered out of play?

Since it is possible that the degree of tautness could vary from one tournament to the next, are event partners going to receive guidance on how taut to install the nets?

Visual Aid: The Turning Point Manual and Appendix A does not contain any instruction on how taught the net should be on the Turning Point playing field. If the net is secured on the top and bottom of the net (seen in figure one), it has too much slack and the balls get caught in the net.

Figure One i.imgur.com/G0P771R.png

We simply attached the net to the top horizontal pole in the net's second Row (Figure Two) this removed all slack, and the balls no longer got caught in the net.

Figure Two i.imgur.com/IN7ALPm.png

I am concerned this will result in discontinuity between fields from event to event, or even within a single event.

Answered by Game Design Committee

There is no specification for tautness in the Net; Teams should expect some variance, both due to manufacturing tolerance in the Net itself, and due to wear over the course of a season. One good way to avoid balls being "caught" in the bottom of the Net, other than by "pulling it tight", is to make sure that the rubber feet at the bottom of the Net are attached per the guidelines in the Field Assembly Instructions - link.vex.com/docs/vrc-turning-point/field-assembly

The building method you describe (removing slack by attaching the top an extra "row" down) would be permissible.