

Q&A

VIQC 2019-2020: Squared Away

Tagged: G17



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 VIQC Squared Away 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 VIQC Squared Away rules questions.

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Programming reset while touching cube... Strategically...

RSC5 G17

RSC5 A Team may handle their Robot as many times as desired during a Programming Skills Match. b. Any Game Objects being controlled by the Robot while being handled must be removed from the Robot and gently placed in a non-Scored position by the Team.

In other words, there is no rule against strategically placing the cube, it can be placed on any non-scored position by the team.

So are the following legal during a Programming Skills Match?

#1: A robot starts by turning and lifting a red cube. The team picks up the robot and cube and places the bot in the other starting position and places the cube next to its scoring zone on the other side of the field. The robot then pushes the cube in.

#2: A team is going to score the green cube on the platform and it gets off course. The team then resets the bot before it drops the cube. They reset the bot and put the cube back in its original position and give it another go.

Answered by Game Design Committee

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Yes, these are both legal within RSC5, which supersedes G17 for Programming Skills Matches. Please also see RSC5's Note, which states the following:

Note: This rule only applies to Programming Skills Matches. Driving Skills Matches are still governed by <G17>, especially for strategic violations.

Returning Game Elements Back to Field

G10 G17

This year game elements that leave the field during the match are not returned to the field per rule <G10>.

If a robot is still holding onto a cube or ball but it touches the floor outside of the field can the team still bring this element back into the field as long as it never left contact with the robot?

Would a team be able to utilize <G17> to handle their robot and put the cube/ball back into play, or should this cube/ball be considered to have left the field?

Answered by Game Design Committee

Would a team be able to utilize <G17> to handle their robot and put the cube/ball back into play, or should this cube/ball be considered to have left the field?

In the future, please quote the applicable rules from the Game Manual so that future visitors can have a better

understanding of a question's context.

G10 states the following, with a portion bolded for emphasis:

<G10> Keep Game Objects in the Field. Game Objects that leave the Field during a Match will not be returned. "Leaving the Field" means that a Game Object is outside of the vertical projection of the Field Perimeter **and no longer in contact with** the Field, Field Elements, other Game Objects, or **Robots**.

G17 states the following, with a portion bolded for emphasis:

<G17> Handling the Robot mid-match is allowed under certain circumstances. If a Robot goes completely outside the playing Field, gets stuck, tips over, or otherwise requires assistance, the Team's Drivers may retrieve & reset the Robot. To do so, they must:

- a. Signal the Head Referee by placing their VEX IQ Controller on the ground.
- b. Move the Robot to any legal Starting Position.
- c. Any Game Object being controlled by the Robot while being handled must be removed from the Robot and gently placed in a non-Scored position by the Team.**
- d. Any Game Objects in the Starting Position may be moved out of the Starting Position and gently placed into a non-Scored position by the Team.

This rule is intended so Teams can fix damaged Robots or help get their Robots "out of trouble." It is not intended for Teams to use as part of a strategy to gain an advantage during a Match, including via moving Game Objects per parts c and d above. If a Head Referee sees Teams strategically exploiting this rule, they may be Disqualified from said Match.

Per G10, as long as the Game Object was still in contact with a Robot, then it has not "left the field". Therefore, G17c can be utilized to return the Game Object to a non-Scored position.

G17 Position of game elements after handling robot

G17

When a robot claw is entangled in the cube, and the driver puts the robot back in a legal starting position, where should they put the cube? Just next to the starting position? or where the cube was before they picked up the robot as long as it is non-scored position? Should the referee adjust the position of the cube if he/she is not happy with the placement by the driving team?

<G17> Rule G17: Handling the Robot mid-match is allowed under certain circumstances. If a Robot goes completely outside the playing Field, gets stuck, tips over, or otherwise requires assistance, the Team's Drivers may retrieve & reset the Robot. To do so, they must: a. Signal the Head Referee by placing their VEX IQ Controller on the ground. b. Move the Robot to any legal Starting Position. c. Any Game Object being controlled by the Robot while being handled must be removed from the Robot and gently placed in a non-Scored position by the Team. d. Any Game Objects in the Starting Position may be moved out of the Starting Position and gently placed into a non-Scored position by the Team.

Answered by Game Design Committee

Thank you for quoting the game manual.

To your first question,

where should they put the cube?

The answer can be found in G17c, quoted below for reference:

G17c: Any Game Object being controlled by the Robot while being handled must be removed from the Robot and gently placed in a non-Scored position by the Team

This means *any* non-Scored position, so both examples you provided would be appropriate options. However, remember be mindful of the rest of G17 beyond what you quoted in your post:

This rule is intended so Teams can fix damaged Robots or help get their Robots "out of trouble." It is not intended for Teams to use as part of a strategy to gain an advantage during a Match, including via moving Game Objects per parts 3 and 4 above. If a Head Referee sees Teams strategically exploiting this rule, they may be Disqualified from said Match.

So, this addresses the second part of your question regarding what the Referee should do:

Should the referee adjust the position of the cube if he/she is not happy with the placement by the driving team?

No, the referee should not adjust the Cube themselves. The only reason that the referee would be "not happy" with the placement is if the Team was using this rule to move a Cube into a position that was either strategically advantageous, such as just barely outside of a Corner Goal, or Scored. Both scenarios could result in a possible Disqualification if it is not rectified immediately (i.e. if it was an accident).

Referees are there to help the teams, so if a referee sees that a team is about to violate this rule, then the referee may caution the team to ensure that no rules are violated.

Hub on barrier possession question

G17

When a hub is touching one of the barriers or the other beams that are attached to the floor, but not the floor, does it count as possessed?

I am especially interested in the case where a robot could be pushing two hubs into the building zone. If the robot approached the building zone in a perpendicular manner then they will both be off the floor for a moment as they are scored.

Answered by Game Design Committee

In the June 15th Game Manual update, <G17> was revised to more clearly answer this question. Barriers are considered a Field Element, and are thus included in the allowance for "pushing" multiple Hubs.

Pushing, shoving, pulling, or plowing multiple Hubs along the Floor, field perimeter, or Field Elements (e.g. *Barriers*) is not considered a violation, as long as these Hubs remain in contact with the Floor.

question on dragging the hubs

G17

We have a robot like most where we pick one and drag 4 hubs. we are being told now at competition that if we drag 2 and they cross the blue bar at the same time it is considered both being lifted. Is this correct? If so what happens if you have one in the claw then you can not push or drag one over the blue while you have it. Please help

Answered by Game Design Committee

It is always difficult to provide a blanket ruling on a hypothetical robot design based on a snapshot description. With that being said, let's take a look at G17, with a portion bolded for emphasis:

<G17> Hub control is limited. Robots may not directly or indirectly lift or hold more than one (1) Hub off of the Floor at a time. **Pushing, shoving, pulling, or plowing multiple Hubs along the Floor, field perimeter, or Field Elements (e.g. Barriers) is not considered a violation, as long as these Hubs remain in contact with the Floor.** However, if a Robot controls multiple Hubs that are not in contact with the Floor (such as pushing a Hub with two Hubs stacked on top of it), this would be a violation.

Provided that you can demonstrate / prove to a Head Referee that your mechanism keeps the Hubs in contact with the Floor and the blue Barriers as they cross, this should be legal. This concept is also covered in this similar Q&A post:

www.robotevents.com/VIQC/2018-2019/QA/117

Rule G17 Question

Hubs G17

Rule G17 states: Hub control is limited. Robots may not directly or indirectly lift or hold more than one (1) Hub off of the Floor at a time. Pushing, shoving, pulling, or plowing multiple Hubs along the Floor, field perimeter, or Field Elements (e.g. Barriers) is not considered a violation, as long as these Hubs remain in contact with the Floor. However, if a Robot controls multiple Hubs that are not in contact with the Floor (such as pushing a Hub with two Hubs stacked on top of it), this would be a violation.

This rule primarily refers to Robots which lift Hubs off of the Floor. Any mechanisms which are designed to lift Hubs can only do so one Hub at a time. If you design your Robot to only lift one Hub at a time, you will probably not violate this rule.

We need clarification on one design used by our students. Here is a <https://www.youtube.com/watch?v=usyzZAdXq2s> of the robot in action. The question is whether or not the robot is violating G17 after it scores the first hub, which remains seated on the grounded hub. The question is whether or not the robot should be considered lifting two hubs at the same time at this point.

Thank you for your input and clarification.

Answered by Game Design Committee

Thank you for the video and for quoting the relevant rule. It is always difficult to issue blanket rulings on specific Robot designs, so a video helps significantly in providing the best possible answer to your question. Let's hone in on the following specific line of the blue box under G17:

Any mechanisms which are designed to lift Hubs can only do so one Hub at a time. If you design your Robot to only lift one Hub at a time, you will probably not violate this rule.

This design, by itself, is not inherently illegal. However, it absolutely contains the potential to violate G17, as it is designed to lift multiple Hubs at a time.

The question is whether or not the robot is violating G17 after it scores the first hub, which remains seated on the grounded hub. The question is whether or not the robot should be considered lifting two hubs at the same time at this point.

It is a semantic but worthwhile point to note that the first Hub is not necessarily considered Scored at this time, because the Robot is still contacting it. Even if the mechanism was somehow "floating" in the middle of the Hub, it would not be reasonable to consider this distinction abundantly clear to a Head Referee in the middle of a Match.

Because the mechanism is still in the same position that it was in when it was very clearly "controlling" the Hub (in the context of G17), and the Hub would definitely move with the Robot if it were to turn or move the mechanism further, the Robot would still be considered "controlling" the first Hub. Thus, this video would be considered a violation of G17. If the Robot could demonstrate visually and clearly that it was completely disengaged with the first Hub, such as by moving the mechanism out of the way, then it would be more likely to be considered legal.

Indirect removal of Bonus Hub from Post

G17

We are having a debate about G17 and whether it would apply to the removal of a bonus peg when a robot is holding one hub in its gripping mechanism? Example: Robot X has lifted a hub off of the ground and then uses that hub to knock the bonus hub off of its peg. Is this a violation of G17?

Because G17 uses language like "Hubs remain in contact with the Floor," I am proposing that it would be a violation since the Bonus Hub on the Peg is NOT in contact with the floor and Robot X already is lifting a different hub. Please correct me or clarify this specific situation.

<G17> Hub control is limited. Robots may not directly or indirectly lift or hold more than one (1) Hub off of the Floor at a time. Pushing, shoving, pulling, or plowing multiple Hubs along the Floor, field perimeter, or Field Elements (e.g. Barriers) is not considered a violation, as long as these Hubs remain in contact with the Floor. However, if a Robot controls multiple Hubs that are not in contact with the Floor (such as pushing a Hub with two Hubs stacked on top of it), this would be a violation.

Answered by Game Design Committee

This is legal.

The operative word in G17, in the context of this question, is "hold".

Robots may not directly or indirectly **lift or hold** more than one (1) Hub off of the Floor at a time.

The intent of G17 is to prohibit Robots from holding and controlling multiple Hubs in the air at a time, as demonstrated in the relevant [Referee Training video](#). Instantaneous "nudging" to remove the Bonus Hub, especially if using a second Hub and the Robot is never in control of the Bonus Hub, would not be considered "lifting" or "holding".

<G17> "Floor" and "Floor, field perimeter, or Field Elements (e.g. Barriers)"

G17

<G17>, emphasis mine

<G17> Hub control is limited. Robots may not directly or indirectly lift or hold more than one (1) Hub off of the **Floor** at a time. Pushing, shoving, pulling, or plowing multiple Hubs along the **Floor, field perimeter, or Field Elements (e.g. Barriers)** is not considered a violation, as long as these Hubs remain in contact with the **Floor**. However, if a Robot controls multiple Hubs that are not in contact with the **Floor** (such as pushing a Hub with two Hubs stacked on top of it), this would be a violation. Minor, momentary, or incidental violations of this rule that do not affect the Match will result in a warning. Score affecting offenses will result in a Disqualification. Teams that receive multiple warnings may also receive a Disqualification at the Head Referee's discretion.

Whenever we see the word "Floor" in this rule, should we read it as "Floor, field perimeter, or Field Elements (e.g. Barriers)" ?

Answered by Game Design Committee

Yes, in this specific rule, every mention of "Floor" could be extended to say "Floor, field perimeter, or Field Elements (e.g. Barriers)" as is spelled out in the first mention. This is not a blanket extension for all mentions of "Floor" in the Game Manual.

Pushing a hub over the barrier, off the floor for a moment

G17

We had a great event yesterday. We had a robot there that has an arm like the one in the video:

www.youtube.com/watch?v=X88uN83N2jI

At the 2:00 mark, you see it push two hubs over the barrier while keeping them tilted back.

Let's note <G17>

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The robot would tilt two hubs and push them over the bar while they were still tilted back. I can imagine that if I had a high speed camera the hubs would "drop" for a moment while coming off of the barrier and momentarily have contact with neither the barrier or the floor. The robot in question at my event would also have a hub in their claw while pushing the two along the floor.

While this would be "momentarily" losing contact with the floor, it would certainly be match affecting if it was part of their scoring strategy. Does this violate <G17>?

Answered by Game Design Committee

The robot shown in the video satisfies the intent of <G17>, and would not be considered a violation. This type of interaction is also addressed in the relevant VIQC Next Level referee training video, around 1:03 -

youtu.be/OwkNH95Hf7g?t=63

Trying to watch for an instantaneous disconnect from the Floor / Barrier, such as one that would require a high speed camera to detect, would be unrealistic for referees and teams alike.