

Q&A

VEX IQ Robotics Competition 2024-2025: Rapid Relay

Tagged: R1

Welcome to the official VEX IQ 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 VIQRC Rapid Relay 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 VIQRC Rapid Relay rules questions.

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 - For VEX technical support, contact support@vex.com or sales@vex.com.
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934: Clarification on R1

18-Nov-2021

R1

According to <R1> teams may not have more than one robot. Additionally, in <R1a> teams may not participate with one robot while another is being modified or assembled. The clarification refers to use of a second robot diminishing "the efforts of a team that has spent extra design time making sure their one Robot can accomplish all of the game's tasks."

If iterative design and improvement is the goal, would teams be allowed to have a second robot at all? Is there a difference between what is allowed for "practice purposes" as opposed to during competition? Would creating and practicing with a second robot diminish the efforts of a team carefully assessing improvements, evaluating risk and potential benefit?

Answered by committee

The full text of the "blue box" at the end of <R1> reads as follows, with a portion bolded for emphasis:

The intent of <R1a>, <R1b>, and <R1c> are to ensure an unambiguous level playing field for all Teams. Teams are welcome (and encouraged) to improve or modify their Robots between events, or to collaborate with other Teams to develop the best possible game solution.

However, **a Team who brings and / or competes with two separate Robots at the same tournament** has diminished the efforts of a Team who spent extra design time making sure that their one Robot can accomplish all of the game's tasks. Similarly, a multi-team organization that shares a single Robot has diminished the efforts of a multi-team organization who puts in the time, effort, and resources to undergo separate individual design processes and develop their own Robots.

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 complete and legal Robots on a table next to each other, then they are two separate Robots. Trying to decide if changing a pin, a wheel, or a motor constitutes a separate Robot is missing the intent and spirit of this rule.

Most Robot rules, including <R1>, are intended to apply within the context of a competition event. For example, <R1-a> is intended to prohibit competing with one Robot in a Match while a second Robot is being assembled in the Team pit area.

There are no rules prohibiting the use of a separate "practice Robot" between events, provided that no other rules are violated (namely, <R1-c>, <R2>, <G2>, etc).

857: Using VexAI Robots in the VexU Competition

1-Sep-2021

R1

Can a collegiate VexAI team also register as a VexU team to compete in both competitions? This would seem to violate <R1> section d, since it states that a robot may not compete under multiple team numbers. But the spirit of the rule seems to be to prevent multiple teams/organizations from sharing a robot, not to prevent one team from competing in both VexU and VexAI.

Answered by committee

Yes, the same group of Students may register as both a VEX U Team and a collegiate VAIC Team. Yes, they may use the same Robot for each competition (provided that no other Robot rules are violated in either one).

R1 is intended to apply to Teams within the same REC Foundation competition platform / grade level. In a tournament, a VEX U Team and a VAIC Team would never share the same field, Skills ranking, Alliance selection, etc. (of course, the Robot cannot be used in multiple programs by separate groups of Students, since that Robot would not represent the skill level of both Team(s), i.e. would be in violation of rule G6)

738: Tetherbots and R1

29-Jan-2021

R1

A team has a main robot and a tethered minibot. For skills matches the team disconnects the minibot and uses only the main robot. Is this a violation of rule R1, specifically R1c?

R1c states "Teams may not switch back and forth between multiple Robots during a competition. This includes using different Robots for Skills Challenge, Qualification and/or Elimination Matches"

Answered by committee

The Subsystem definitions in R1 read as follows:

- Subsystem 1: Mobile robotic base including wheels, tracks, legs, or any other mechanism that allows the Robot to navigate the majority of the flat playing field surface. For a stationary Robot, the robotic base without wheels would be considered Subsystem 1.
- Subsystem 2: Power and control system that includes a legal VEX battery, a legal VEX control system, and associated motors for the mobile robotic base.
- Subsystem 3: Additional mechanisms (and associated motors) that allow manipulation of game objects or navigation of field obstacles

Given the above definitions, a minimum Robot for use in any VEX Robotics Competition event (including Skills Challenges) must consist of 1 and 2 above. Thus, if you are swapping out an entire subsystem of either item 1 or 2, you have now created a second Robot and are no longer legal.

It is always difficult to provide a blanket answer based on a snapshot description of a hypothetical design. For this to be legal, inspectors and Head Referees should make the following decisions:

1. If the "minibot" portion of your Robot is not considered Subsystem 1 or Subsystem 2 of your Robot (i.e. it is not the "mobile robotic base").
2. If Subsystems 1 and 2 are not swapped out when changing between configurations.

If these conditions are met, and the "minibot" can therefore be interpreted as Subsystem 3, then this would be a legal configuration change. At this point, the Robot would be subject to R3, which discusses Robots with multiple functional configurations.

<R3> Robots must pass inspection. Every Robot will be required to pass a full inspection before being cleared to compete. This inspection will ensure that all robot rules and regulations are met. Initial inspections will take place during team registration/practice time.

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.

2868: IQ AI Vision Sensor

22-Oct-2025

R1

[<R1>](#) I have part number 228-9136-000 IQ AI Vision Sensor, this part is listed in the store as VIQRC game, but when looking at the Legal parts Rev 21 the vision sensor listed is 276-4850. When searching for this device it is shown that this is replaced by AI Vision Sensor 276-8659. This item is listed under the V5RC, VURC, VAIRC Legal games.

Is the 228-9136-000 legal to use in the VEX IQ Mix and Match competition?

Answered by committee

Thanks for your question, Team 40693P!

As described in clause E of rule [<R14>](#), "Additional VEX IQ products that are released during the season are legal for use, unless otherwise noted on their product pages." The VEX IQ AI Vision Sensor (228-9136) is legal for use on VIQRC Robots.

27: Clarification of <R1> and <R2>

14-Jun-2018

R1 R2

Rule <R1> allows teams to replace subsystem 3 during a competition, such as a flywheel, cap lifter, scissor lift etc, whilst rules <R1> and <R2> limit teams to only having one robot at a competition:

Would a team be allowed to have spare subsystem 3s for their entire robot if they are identical to the subsystem originally on the robot? Would having replacement subsystem 3s for all the parts of the robot class as being a second robot effectively for spares, breaking rule <R2>

This is because we intend on building a modular robot where each subsystem 3 can be swapped out with ease, whilst keeping the same subsystem 1 and 2

Answered by committee

Yes, this is legal. As you noted, <R1> only prohibits teams from swapping Subsystems 1 and 2. Remember that if you have multiple configurations with different Subsystem 3 mechanisms, your Robot must be inspected in all possible configurations per <R2b>.

2618: Clarification on R1 - Subsystems and Motor Usage

12-Mar-2025

R1

Hello GDC, We would like to ask some questions of rule R1 about subsystems. From the rule R1, it define motors that are used for subsystem 1 as subsystem 2, and it say we cannot swap the whole subsystem 1 or 2 which will cause violate. So I would like to ask some questions about it:

1. Motor Shared Between Subsystem 3 and Subsystem 1:

- If a motor is used for both Subsystem 3 and Subsystem 1, does this mean it is considered part

- If so, does this imply that we cannot move or replace this motor, since it would be classified as a separate robot?
2. Repositioning a Motor Within Subsystem 1:
- Suppose we have a drivetrain that uses only two motors.
 - If we move one of these motors to a different mounting position while still exclusively powering Subsystem 1, would this be considered a violation of R1?

Thank you for your time and clarification!

Answered by committee

If a motor is used for both Subsystem 3 and Subsystem 1, does this mean it is considered part of Subsystem 2?

No.

If we move one of these motors to a different mounting position while still exclusively powering Subsystem 1 (drivetrain), would this be considered a violation of R1?

No. As stated in the blue box in rule [<R1>](#), "Trying to decide if changing a pin, a wheel, or a motor constitutes a separate Robot is missing the intent and spirit of this rule."

2581: Questions about robot subsystems 1, 2, and 3?<R1> One Robot per Team.?

27-Feb-2025

R1

[<R1>](#)

As shown in the figure (<https://drive.google.com/file/d/1PZBe4MgGiPOnKt6HAOAm49eFZtlyWoYd/view?usp=sharing>) There are two machines, their subsystem 1 and subsystem 2 are the same, and both can pass the machine inspection. My question is, in a competition, can the same team modify the left machine into the right machine according to different competition events? Please note that it is not a replacement of a robot, but retaining the subsystem 1 and subsystem 2 of the left robot, and then modifying it on the spot to become the right robot.

Answered by committee

This would technically be legal if both pass Robot inspection, although it pushes the limits and intent of the rule.

2560: Moving a smart motor from one component to another between skills and team work matches

21-Feb-2025

R1

GDC,

From the game manual

Subsystem 1: Mobile robotic base including wheels, tracks, or any other mechanism that allows the Robot to navigate the majority of the flat playing Field surface. For a stationary Robot, the robotic base without wheels would be considered Subsystem 1. Subsystem 2: Power and control system that includes a VEX IQ

legal battery, a VEX IQ control system, and associated Smart Motors for the mobile robotic base.
Subsystem 3: Additional mechanisms (and associated Smart Motors) that allow manipulation of Balls or navigation/manipulation of Field Elements.

> To help determine whether 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 complete and legal Robots on a table next to each other, then they are two separate Robots. Trying to decide if changing a pin, a wheel, or a motor constitutes a separate Robot is missing the intent and spirit of this rule.

Based on the above definitions in the game manual - "Is it safe to assume that a team can move a smart motor from one component of the robot (say, during skills) to another component of the robot (for teamwork matches)?"

Thank you,

Answered by committee

Is it safe to assume that a team can move a smart motor from one component of the robot (say, during skills) to another component of the robot (for teamwork matches)?"

Yes.

2545: Subsystem definition

17-Feb-2025

R1

Dear judges? Hello? I'd like to ask you a few questions

1. Is there a more clear definition of the control system in subsystem 2? Do air pumps, valves and cylinders count as subsystem 2
2. Does the cylinder belong to Subsystem 3
3. Is it illegal to change only part of subsystem 1 or subsystem 2, such as removing two of the four motors that control the chassis movement and installing them on the additional structure of the control ball
4. According to QA2183, the replacement of wheels will not be regarded as the replacement of subsystems. Can it be understood in this way that subsystem 3 on the machine also has wheels in contact with the site, but the wheels cannot be actively rotated and only serve as training wheels for the machine to move

Answered by committee

Hello!

The current text of <R1> does not make it clear how VEX IQ Pneumatics fit into the subsystem definition, and for that, we apologize. This answer will serve to help clarify how pneumatics components best fit into the subsystem definitions in that rule. This will be revised in the next game manual update.

The air pump and pneumatic solenoids best fit as a part of subsystem 2. They are the "power/control system" for pneumatics.

Pneumatic cylinders, tubing, and fittings would most likely be a part of subsystem 3, unless they are integral parts of the 'Mobile Robotic Base,' in which they could be considered part of subsystem 1 or 2, as well.

Removing or moving motors from subsystem 1 or 2 does not inherently mean <R1> has been violated, but rather if the entire subsystem 1 and/or 2 is replaced as a whole, it would be considered a Violation. Swapping components and/or moving components to a different place on the Robot is not a Violation of <R1>.

Direct quote from <R1>:

Given the above definitions, a minimum Robot for use in any VEX IQ 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 are no longer legal.

We don't understand the 4th bullet point in your question. Please rephrase and resubmit if it wasn't clarified by the above answers.

2453: Subsystem 1 - if it is legal for a robot to secure to the playing field

22-Jan-2025

R1

Subsystem 1: Mobile robotic base including wheels, tracks, or any other mechanism that allows the Robot to navigate the majority of the flat playing Field surface. For a stationary Robot, the robotic base without wheels would be considered Subsystem 1.

We have an idea, but it requires the stationary Robot to be secured to the playing Field with the help of connector pins. Based on <R1>, we would like to confirm whether this idea will be considered a violation?

<R1>

Answered by committee

Securing the Robot to the Field with VEX IQ connectors would put the Robot in contact with the *inside* of the Field tiles, in Violation of clause A of rule <R4>, which specifies that the Robot can only be in contact with the Floor and the inside face of the Field Perimeter at the start of each Match.

2335: no mobile system.

29-Nov-2024

R1

<R1><R1> Hello! May I ask if it is possible to design a machine with a pure conveyor belt that does not move? That is to say, there is no mobile system.

Answered by committee

Yes, this would be possible and legal. As described in the definition of Subsystem 1 in rule <R1> (bold added here for emphasis):

Subsystem 1: Mobile robotic base including wheels, tracks, or any other mechanism that allows the Robot to navigate the majority of the flat playing Field surface. **For a stationary Robot, the robotic base without wheels would be considered Subsystem 1.**

2297: About gear switching

15-Nov-2024

R1

I'm sorry that no picture can be inserted here. Please describe it in words. In my machine design, there are three axes, input shaft No. 1, output shaft No. 3, and shaft No. 2 are connected to the motor and a gear. In the competition, as a passing vehicle, I will move the gear on shaft No. 2 to the left and engage the gear on shaft No. 1. In the other case, as a pitching cart in the game, I will move the gear on the No. 2 axis to the right and engage the gear on the No. 3 axis. In this case, the No. 2 axis drives the No. 3 axis while the No. 1 axis does not move.<R1>

Answered by committee

We're not quite sure what you're asking, but what you describe would generally be legal if designed and built by student team members.

223: <R1> (a) second robot clarification

22-Jan-2019

R1

"<R1> Only one (1) robot will be allowed to compete per team in the VEX Robotics Competition. ... a. Teams may not compete with one robot while a second is being modified or assembled."

Teams in my region (and I assume others) are now receiving V5 kits. They have Cortex robots built but want to work on their V5 robot. For several schools, tournaments are the longest block of time available to work on a robot. Does <R1>(a) prevent them from competing with their Cortex robot while building their V5 robot if they don't compete with the V5?

Secondly, <R1>(Subsystem 1) states: "...For a stationary robot, the robotic base without wheels would be considered Subsystem 1." Would a team be allowed to have a stationary base (w/o Subsystem 2) for the purpose of working on a Subsystem 3?

Thank you.

Answered by committee

Does <R1>(a) prevent them from competing with their Cortex robot while building their V5 robot if they don't compete with the V5?

The red box underneath <R1> helps to clarify this:

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 <G2>. 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 have the 3 Subsystems defined by <R1>), then they are two robots.

So, the answer to your specific question is "Yes". Competing with one Robot at an event while working on a second Robot (which has a second Subsystem 2) at the same event is an explicit violation of <R1>.

Would a team be allowed to have a stationary base (w/o Subsystem 2) for the purpose of working on a Subsystem 3?

Yes, this would be legal. <R1> includes the following statement:

Given the above definitions, a minimum robot for use in any VEX Robotics Competition event (including Skills Challenges) must consist of 1 and 2 above.

A Robot without both subsystems 1 and 2 would not be considered a second "Robot" within the purest definition of <R1>.

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 what's 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 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.

2183: Swapping out Wheels During a Competition

10-Oct-2024

R1

Hello GDC! Our team would like to know if we would be able to change wheels during a competition for Autonomous Coding Skills Matches. The second paragraph of [<R1>](#) states that:

Given the above definitions, a minimum Robot for use in any VEX IQ 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 are no longer legal (**BOLDING MINE**)

Would swapping out just the wheels of Subsystem 1 be considered a partial swap or does it violate [<R1>](#)?

Answered by committee

Thanks for your question. Wheels in and of themselves are not considered a subsystem, so you are free to swap them out. Per clauses A & B of rule [<R3>](#), the Robot must be inspected in both configurations.

214: Subsystem removal

17-Jan-2019

R1

Rule

[<R1>](#) Only one (1) robot will be allowed to compete per team in the VEX Robotics Competition. Though it is expected that teams will make changes to their robot at the competition, a team is limited to only one (1) robot. As such, a VEX robot, for the purposes of the VEX Robotics Competition, has the following subsystems:

Subsystem 1: Mobile robotic base including wheels, tracks, legs, or any other mechanism that allows the robot to navigate the majority of the flat playing field surface. For a stationary robot, the robotic base without wheels would be considered Subsystem 1.

Subsystem 2: Power and control system that includes a legal VEX battery, a legal VEX control system, and associated motors for the mobile robotic base.

Subsystem 3: Additional mechanisms (and associated motors) that allow manipulation of game objects or navigation of field obstacles. Given the above definitions, a minimum robot for use in any VEX Robotics Competition event (including Skills Challenges) must consist of 1 and 2 above. Thus, if you are swapping out an entire subsystem of either item 1 or 2, you have now created a second robot and are no longer legal.

- a. Teams may not compete with one robot while a second is being modified or assembled.
- b. Teams may not switch back and forth between multiple robots during a competition. This includes using different robots for Skills Challenge and Qualification / Elimination Matches.
- c. Multiple teams may not use the same robot. Once a robot has competed under a given team number at an event, it is "their" robot - no other teams may compete with it for the duration of the competition season.

Question: Our team would like to clarify that we can compete with and without our lift under the ruling of R1. We understand that we will have to have the robot reinspected when a subsystem 3 is removed and put back on. We operate using V5 with 8 motors with the lift (4 motors used for our lift) and 6 without the lift (we add two motors to our drive train). The purpose of removing the lift is because it's so heavy and we want to add speed.

Answered by committee

Yes, this would be legal within <R2>, quoted here for reference and bolded for emphasis.

<R2> Every robot will be required to pass a full inspection before being cleared to compete. This inspection will ensure that all robot rules and regulations are met. Initial inspections will take place during team registration/practice time.

a. If significant changes are made to a robot, such as a partial or full swap of Subsystem 3, it must be re-inspected before it will be allowed to compete.

b. If a robot has multiple functional configurations, all possible configurations must be inspected before being used in competition.

c. Teams may be requested to submit to random spot-inspections by event personnel. Refusal to submit will result in Disqualification.

d. Referees or inspectors may decide that a robot is in violation of the rules. In this event, the team in violation will be disqualified and the robot will be barred from the playing field until it passes re-inspection.

1987: Swapping of Subsystem 3

2-Mar-2024

R1

Is swapping of subsystem 3 allowed between matches or skills? For example, swapping the entire climbing mechanism based on our alliance partner's climbing mechanism. Or swapping the catapult to a kicker mechanism for skills? [<R1>](#)

If this is allowed, do teams show all configurations during inspection?

Answered by 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.

1950: Rubber bands motors

12-Feb-2024

R1

We see teams holding their motors using rubber bands. Is it legal?

Answered by committee

Yes.

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 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.

1847: <R1> Legality of switching motors between subsystems

29-Dec-2023

R1

What is the legality of having more than 8 motor caps, with the intention of being able to switch one of the motors to a different mechanism? For example: switching a motor to a different subsystem for skills, then switching it back for matches, while remaining under the 88W limit. I have seen teams do this and not get called out for it, but none are fully clear about the legality of it.

Rule <R1c> states

Teams may not switch back and forth between multiple Robots during a competition. This includes using different Robots for Skills Challenges, Qualification Matches and/or Elimination Matches.

However, if no subsystems are being modified, even though the motor allocation is, would it be considered "switching between multiple Robots"?

Answered by committee

Yes, this would be legal. The red box in [<R1>](#) includes the following note:

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.

To avoid any confusion, the Robot should be inspected in both configurations, per [<R3>](#).

b. 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>](#)).