

# Q&A

## VIQC 2021-2022: Pitching In

Tagged: R14

Welcome to the official VEX IQ Challenge 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 Pitching In 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 Pitching In rules questions.

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### <R5>, <R14>Is it Legal to Use 393 Motor Refurb Gears and V5 Cartridges as Mechanical Components?

R5 R14

Legality of part usage from 393 motor refurb kit and V5 Motor Cartridges as mechanical components?

In previous years it was ruled legal that 393 motor internal gears, sold in refurb kits, can be used outside of a motor as mechanical components, since they are sold as a separate item. [www.vexforum.com/t/answered-further-question-about-r15/23896/2](http://www.vexforum.com/t/answered-further-question-about-r15/23896/2) [www.vexforum.com/t/answered-is-it-legal-to-re-use-internal-motor-parts-outside-of-motors/30764](http://www.vexforum.com/t/answered-is-it-legal-to-re-use-internal-motor-parts-outside-of-motors/30764)

Questions for the Tower Takeover Season: A. (R5) Does the above positive ruling still stand regarding the legal use of refurb kit gears? B. (R14) Additionally, are V5 Motor Cartridges legal to use as mechanical components external to the V5 motor?

Thank you from Vexmen Team 81K Magik

#### Answered by committee

A. (R5) Does the above positive ruling still stand regarding the legal use of refurb kit gears?

Yes, this is legal.

B. (R14) Additionally, are V5 Motor Cartridges legal to use as mechanical components external to the V5 motor?

There are no rules prohibiting this, thus it is legal. However, any modifications to the cartridge would be considered a violation of R22. Also, please bear in mind that there are no VEX-legal components that can interface with the internal half of the cartridge. Removing parts from a V5 Smart Motor to do so would also be considered a violation of

## Powering and using lights including LED light strings

R8 R14

During Skyrise a battery source of power for LED light strips was not allowed by rule R13 (comparable to Turning Point R14). Obviously old Q&As don't directly apply to new games, but they often do provide insight into what has been allowed/disallowed in the past.

[www.vexforum.com/index.php/13041-answered-led-lights-for-decoration/0](http://www.vexforum.com/index.php/13041-answered-led-lights-for-decoration/0)

In light (no pun intended) of the recent Q&A answer [www.robotevents.com/VRC/2018-2019/QA/162](http://www.robotevents.com/VRC/2018-2019/QA/162) where LED lights are powered by a battery that isn't a V5 or Cortex battery...

Can a robot have LED lights powered by an external battery source (not Cortex or V5 battery) providing R8 isn't violated? or is it only small self contained objects that are allowed (that don't include external wiring)?

<R14> The only allowable source(s) of electrical power are as follows: a. If using a VEX ARM® Cortex®-based Microcontroller, robots may use (1) VEX 7.2V Robot Battery Pack of any type, and one (1) 9V backup battery. i. Robots utilizing the VEX Power Expander may use a second VEX 7.2V Robot Battery of any type.

b. If using a V5 Robot Brain, robots may use (1) V5 Robot Battery (276-4811).

<R8> Teams may add non-functional decorations, provided that they do not affect the robot performance in any significant way or affect the outcome of the match. g. Decorations that visually mimic field elements or could otherwise interfere with an opponent's Vision Sensor are considered functional and are not permitted. This includes lights, such as the VEX Flashlight.

### Answered by committee

Thank you for pointing out this inconsistency. We will update the answer to the other Q&A post accordingly.

Powered non-functional decorations may only be powered by legal sources of electrical power as defined in <R14>.

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## R14 b iii Controller Power Source

R14

As per this Q&A: [www.robotevents.com/VRC/2018-2019/QA/42](http://www.robotevents.com/VRC/2018-2019/QA/42) it is legal to power a V5 Controller using an external battery pack.

This seems to imply that R14 b iii does not always apply. If this is correct, when **does** R14 b iii apply? Also, what is considered an acceptable external power source for the joystick? Here are a few examples, but more general language would be appreciated:

1. USB battery pack
2. USB wall plug
3. Laptop
4. Tablet
5. Phone
6. Solar (for trickle charging)

To be clear, the joystick would not be modified in any way; all devices would be external and power the joystick only through the micro USB port.

### Answered by committee

These would all be acceptable, provided that they meet the requirements spelled out in the linked Q&A post (interface with the standard micro USB port on the Controller and do not involve any modification to the Controller).

G7 would also apply:

<G7> Only Drivers, and only in the Alliance Station. During a Match, all Drive Team Members must remain in their Alliance Station. Drive Team Members are not allowed to use any sort of communication devices during their Match. Devices with communication features turned off (e.g. a phone in airplane mode) are allowed.

If a laptop or tablet were to be used as an external power source for a Controller, it must do so with communication features disabled.

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## R14 - non damaging and detachable parts

### R14

In the final moments of the match, before a low hang, a triangle plate on the robot would get intentionally knocked off of the robot by running into the low bar. This action would allow for the hanging mechanism to engage and work properly.

According to R14, the intentional detachment of the triangle plate would be legal because it is NOT prohibited. We have confirmed through testing that this action poses no risk of damage to field elements or balls, can not damage other robots and can not entangle other robots. Are we reading this correctly?

Further, according to inspection checklist, the R14 question asks if you have any intentionally detachable parts. By answering YES, would this FAIL INSPECTION or should this robot with the detachable (non damaging part) triangle plate be legal and pass inspection?

### Answered by committee

R14 reads as follows:

<R14> Prohibited items. The following types of mechanisms and components are NOT allowed:

- a. Those that could potentially damage Field Elements or Balls.
- b. Those that could potentially damage other Robots.
- c. Those that pose an unnecessary risk of entanglement.

Please also see rule G13, quoted here for reference, with a portion bolded for emphasis:

<G13> Keep your Robot together. **Robots may not intentionally detach parts or leave mechanisms on the Field during any Match. If an intentionally detached component or mechanism affects game play, the Team may be Disqualified at the Head Referee's discretion.** Parts that become unintentionally detached from the Robot are no longer considered to be part of the Robot and can be either left on the Field, or collected by a Driver (utilizing <G18>).

Although detachable parts are not, by themselves, considered a violation of R14, this question is asked during the inspection process to assist Teams in identifying potentially illegal mechanisms before entering the field. A mechanism which detaches from the Robot in order to aid in Hanging would be considered "affecting gameplay", and therefore a violation of G13.