

# Q&A

## VEXU 2019-2020: Tower Takeover

Tagged: R16



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](mailto:support@vex.com) or [sales@vex.com](mailto:sales@vex.com).
- For game questions, suggestions, or concerns outside of specific and official rules questions, contact [GDC@vex.com](mailto:GDC@vex.com).

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## Cortex Non-Functional Decorations

R12 R16 R17

Under rules <R12>, <R16>, <R17>, may teams using the V5 Control System use a Cortex VEXNET 2.0 Key as a non-functional decoration?

### Answered by Game Design Committee

No, this is not legal.

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## R16ci Question

R16

As an addition to the cabling question in [www.robotevents.com/VRC/2018-2019/QA/35](http://www.robotevents.com/VRC/2018-2019/QA/35),

R16ci states:

"Using the V5 Smart Cable Crimp Tool, V5 Smart Cable Stock, and V5 Smart Cable Connectors to create custom-length Smart Cables is permissible."

1. Are the "V5 Smart Cable Connectors" identical to standard RJ11 connectors?
2. If the answer to 1 is yes, then would it be legal to, under R7b, use off the shelf RJ11 connectors? [Example.](#)
3. Would it be legal to use an off the shelf RJ11 crimper instead of the V5 Smart Cable Crimp Tool? [Example.](#)

### Answered by Game Design Committee

1. Are the "V5 Smart Cable Connectors" identical to standard RJ11 connectors?

2. If the answer to 1 is yes, then would it be legal to, under R7b, use off the shelf RJ11 connectors? [Example.](#)

V5 Smart Cable Connectors are identical to standard 4p4c connectors (not RJ11 connectors). Using off-the-shelf connectors along with official V5 Smart Cable Stock would be permissible. However, note that off-the-shelf 4p4c cable is not permitted, per the other Q&A that you linked.

3. Would it be legal to use an off the shelf RJ11 crimper instead of the V5 Smart Cable Crimp Tool? [Example.](#)

Yes, this would be legal.

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## Making V5 Smart Cables

R16

Copied from: The\_Original\_Kev May 7 According to R16:

i. Using the V5 Smart Cable Crimp Tool, V5 Smart Cable Stock, and V5 Smart Cable Connectors to create custom-length Smart Cables is permissible. Teams who use custom cables acknowledge that incorrect wiring may have undesired results.

Alternatives can be used if they are identical to vex parts. Is there any difference between commercially available rJ11 cables and the VEX V5 Official cables or are they completely identical, and if they are identical, are teams allowed to use alternatives.

### Answered by Game Design Committee

The V5 Smart Cables are not identical to all off-the-shelf 4p4c cables. VEX cables are built to a certain specification to fully support the features of V5 Smart Motors and sensors. As we cannot guarantee that off-the-shelf cables are built to this same spec, they may not perform as expected and could pose a potential safety hazard. Thus, they are not permitted. Inspectors can verify that a team is using official cables by checking for "V5" logos that are stamped along the cable.

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## Legal non-functioning decoration? V5 USB extension left mounted during matches

R7 R8 R16

Would a short USB cord left plugged into the V5 programming port be legal during an event? The intent is to save wear and tear on the programming mini USB port in the V5 brain. Example: [a.co/d/5j3D0nI](https://a.co/d/5j3D0nI)

<R7> Robots are allowed the following additional "non-VEX" components:

h. A USB extension cable may be used for the sole purpose of remote mounting of a VEXnet Key 2.0 to a VEX ARM® Cortex®-based Microcontroller.

<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. These decorations must be in the spirit of the competition. Inspectors will have final say in what is considered "nonfunctional".

### Answered by Game Design Committee

Yes, this would be legal, provided that the conditions of R8 and R16 are met. If there is any concern as to whether such a device is functional or not, Teams should be prepared to demonstrate to inspectors and/or referees that such a decoration is non-functional, such as by playing a Match with the device removed.

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## <R16> Clarification for VEX U

R16 VEX U

In VRC rule <R16> f. it is stated that "Welding, soldering, brazing, gluing, or attaching in any way that is not provided within the VEX EDR platform will NOT be allowed." However, in <VUR3> it states that VEX U teams are allowed to use "An unlimited amount of steel and aluminum." for their designs. Would this mean that soldering or brazing is allowed for VEX U if the team uses steel or aluminum as a filler metal? Furthermore, due to the encouragement of using advanced manufacturing techniques for VEX U, would welding, soldering, brazing, or gluing in general be legal? If not is soldering specifically allowed on additional electronics used for sensing or processing for VEX U?

### Answered by Game Design Committee

Welding, brazing, and gluing can be considered acceptable "fabrication" methods within the context of VUR3, and are permitted in VEX U. We will keep this distinction in mind when revising VEX U rules in the future to be more clear.

Soldering additional electronics within the constraints of VUR6 is permitted. However, VEX electronics (including Robot Brains, Motors, Batteries, etc) may still not be modified in any way, including via soldering.

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## Is it permitted to replace a V5 motor mount insert with a standoff once the insert has stripped?

R16

It occurs from time to time that the small metal extrusion on the threaded motor mounts become shredded. The mount is a standoff shaped structure. So is it permissible to replace it with a standoff?

Is it further permitted to remove the internal insert and mount it outside as described in the turntable mounting instructions provided by VEX?

The concern is that these would both be violations of R16

Thank you for your consideration!

**Answered by Game Design Committee**

Yes, this is legal.