

Q&A

VRC 2023-2024: Over Under

Tagged: R27

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 Over Under 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 Over Under rules questions.

- For event, registration, or other competition support questions, please contact your [REC Foundation Manager](#).
 - For VEX technical support, contact support@vex.com or sales@vex.com.
- For game questions, suggestions, or concerns outside of specific and official rules questions, contact GDC@vex.com.

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756: 3D Printed License Plate Holders

5-Mar-2021

R13 R27

Nit picking question for sure but since it came up at an event it would be helpful to get clarification. Are 3D printed license plate holders allowed to hold custom and/or VEX standard license plates? I assume they would be per <R13> and <R27> just as the game manual notes custom 3D printed plates are, but the question arose as to whether they were in fact functional due to the fact that they are "holding the license plate".

<R27> notes that "License Plates are considered non-functional decorations" Perhaps adding "license plate attachments/holders" to this description would clarify should this be the case.

Thank you!

Answered by committee

Are 3D printed license plate holders allowed to hold custom and/or VEX standard license plates?

It is impossible to provide a blanket answer that will encompass all possible Robot and License Plate holder designs, based on a hypothetical description. However, a non-functional structure that serves the sole purpose of supporting an official License Plate would be considered an extension of the License Plate as a non-functional decoration, and would therefore be legal.

As with all questions regarding non-functional decorations, it will ultimately be at the Head Referee and/or inspector's discretion whether a given part is considered "functional" or not. In the context of a hypothetical License Plate holder, using the 3D printed material to provide additional structural support for a Robot mechanism would definitely be considered "functional".

711: Tetherbot License Plates

11-Dec-2020

R27

Some innovative students have created robots that have two or more parts that can essentially act as separate robots. The parts are attached by a long tether containing motor wires going back to a single brain. [Here is a video of two such robots.](#) The following questions assume that these robots do not violate any rules in section 3 of the game manual and thus are legal.

In a match with tetherbots it may be difficult for the referee to quickly ascertain the alliance color of part of the robot. For example, a tetherbot could pass inspection with license plates on opposing sides of the robot, even though part of the robot does not have a license plate once fully expanded.

The inspection checklist says:

Robot displays colored VEX Team Identification plates on at least (2) opposing sides, with only (1) color visible. R28

Rule R27 says: (Sorry, getting error trying to paste the text of the rule. [Here is a link to the game manual.](#))

Although rule R27 has many details about license plates, it does not state the number of license plates required, but it does give the Head Referee latitude to ensure that the alliance color is abundantly clear.

Even though robots are customarily expected to have only two license plates, should a Head Referee require that a tetherbot have license plates on opposing sides of each part of the robot that becomes separated after the match starts?

Answered by committee

The "red box" of R27 states the following:

The intent of this rule is to make it very easy for Head Referees to know which Alliance and which Team each Robot belongs to. Being able to "see through" a Robot arm to the wrong color License Plate on the opposite side of the Robot would be considered a violation of <R27a>.** It will be at the full discretion of the Head Referee and inspector at a given event to determine whether a given custom license plate satisfies the criteria listed in <R27>.** Teams wishing to utilize custom plates should be prepared for the possibility of this judgment, and ensure that they are prepared to replace any custom parts with official VEX License Plates if requested. Not bringing official replacement plates to an event will not be an acceptable reason for overlooking a violation of one or more points in <R27>.

It is impossible to provide a blanket answer that would encompass all hypothetical Robot designs or Match contexts. R27 intentionally provides Head Referees with full discretion to make this judgment call for a given Robot / Match / event. Whenever a rule relies on a Head Referee judgment call, we would always advise minimizing risks of a conflict by making it abundantly clear that the rule is not being violated.

3101: Can you sand aluminum parts that come into contact with game elements in order to reduce friction?

20-Feb-2026

R27

We'd like to sand some 5x25 aluminum plate that comes into contact with blocks, in order to reduce friction. We would sand down to a grit of probably 300-600 using an orbital sander. Can we do that?

Answered by committee

Yes.

3079: Is drilling or adding holes to the V5 Smart Motor Cap permitted under R27 and R28?

5-Feb-2026

R27 R28

According to , no modifications to electronic components are allowed, with a limited list of user-serviceable exceptions for the V5 Smart Motor (11W).

<R28.c> states that, for the purposes of this rule, the V5 Smart Motor Cap is not considered "part of the motor," and therefore applies.

allows most physical modifications to non-electrical components, such as cutting or drilling legal metal or plastic parts.

Given this interaction between and , is it legal to drill holes or otherwise physically modify the V5 Smart Motor Cap (for example, for cable routing or mounting), beyond the specific actions listed in <R28.a>?

In other words, does permit structural modifications to the Motor Cap, or is modification limited strictly to the user-serviceable actions explicitly listed in <R28.a>?<R27><R28>

Answered by committee

| The V5 Smart Motor Cap is not considered a part of the motor, and can be modified like other structural parts.

3064: Clarification on Inspection Questions

28-Jan-2026

R24 R27

[<R27>](#)

At a recent event that our team went to, there were a couple of items mentioned during the inspection which the team has never been asked before and we wanted to seek clarification on them-

1. The inspectors mentioned that to be legal, the VEX stickers must be visible on the air cylinders. We are not able to find such a rule in the game manual, and [<R24>](#) states that visual decorations are allowed, and our team has wrapped the air cylinders with black tape to match the team's robot color scheme. If this occurs again, we are thinking of bringing a cylinder without the tape to show the inspectors going forward. Is this acceptable, or should the team just remove the tape from the cylinders already on their robot?
2. The inspectors also asked the team whether they used any loctite. [<R27f>](#) allows the use to loctite. So we were wondering if there is a limitation on the use of Loctite. The team uses Blue loctite which is what we believe to be the legal one.

Thank you in advance.

Answered by committee

1. Decorating air cylinders with stickers, tape, or other similar materials is currently subject to the judgment of the inspector and Head Referee, and may be allowed. However, it is likely that we'll add some restrictions beginning with the next game manual update to ensure that inspectors and Head Referees can easily and quickly confirm that the cylinders are legal parts.
2. Clause F of rule [<R27>](#) allows the use of Loctite or similar thread-locking products to secure mechanical fasteners. This allowance only applies to fasteners, and Loctite cannot be used for any purpose anywhere else on the Robot.

1926: Auton Code Being Used During Driver Control

2-Feb-2024

R27

Is it considered outside the spirit of the competition for a robot to run autonomously for parts or even the entirety of a match.

Answered by committee

There are no rules preventing this, therefore it is legal.