



Training and
Support

2018-2019 *FIRST*® Tech Challenge Forum Answered Questions

ROVER RUCKUS



Presented By **Qualcomm**

www.firstinspires.org

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FOR INSPIRATION & RECOGNITION OF SCIENCE & TECHNOLOGY

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Giorgio Tsoukalos

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Giorgio Tsoukalos

Senior Member

Join Date: Nov 2013

Posts: 109

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General Robot Rules - Answers#1

09-19-2018, 03:47 PM

Answers to questions about General Robot Rules can be found in this section.

Tags: None

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Committee Member

Join Date: Sep 2010

Posts: 888

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10-03-2018, 12:08 PM

#2 *Originally posted by **kstevens2017_1*****Linear Actuators****Q: Is use of a linear actuator legal in FTC?**

A: Linear Actuators are legal but they must be constructed by the teams themselves. Commercial Off The Shelf (COTS) linear actuators that contain more than one degree of freedom (rotation for the motor and linear motion of the slide) violates <RM02> which states that "Purchased mechanism kits (for example, grippers) that violate the single degree of freedom rule, either assembled or requiring assembly, are not allowed".

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Committee Member

10-22-2018, 04:01 PM

#3 *Originally posted by **FTC13438***

Join Date: Sep 2010
Posts: 888

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Tank Treads

Q: I don't see tank treads on either the legal or illegal parts list. Can my kids use these? We wanted to order the Tetrax Max Tank Tread Kit. Is that legal?

A: Yes, tank treads are legal but they are still subject to Rule < RG01>.

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Ming the Merciless

Game Design
Committee Member

Join Date: Sep 2010
Posts: 888

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10-23-2018, 06:20 PM

#4

Originally posted by ndillard2017

Hook on Rope

Q: If a robot were to use a hook at the end of a rope/string/tether on a pulley mechanism that was used exclusively for latching and deploying, would this be considered detached in violation of <G15>?

A: No this is not considered detached and is not in violation of rule <G15>. Remember that in designing your bot you may not violate other rules such as <RG08> or <RG01.d>.

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11-05-2018, 11:09 AM

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11-05-2018, 11:09 AM

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Ming the Merciless

Game Design
Committee Member

Join Date: Sep 2010
Posts: 888

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11-05-2018, 11:06 AM

#5

Originally posted by FTC13794

Wedgetop Tread

*Q1: Is Wedgetop Tread (AndyMark Part number am-0522 illegal?)
Q2: Is Green Grippy Tread (am-2611) illegal?*

A1: Yes, Wedgetop tread is legal. However depending on how it is used, the weight of the robot, etc. the Inspectors may still require the bot to pass the

test outlined in the Robot Inspector Manual. To summarize, the robot should be placed on top of a field tile and against an immovable surface (wall), the wheels will then be run at full power for 15 seconds. If there is any physical damage to the floor tile, the wheels are not allowed. Discoloration or black marks alone are not considered field damage.

A2: Yes, the Green Grippy tread is legal but is under the same restrictions as listed in A1.

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Committee Member

Join Date: Sep 2010
Posts: 888

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11-08-2018, 10:10 AM

#6

Originally posted by **FTC5559**

Cheesecaking Mechanism

Q: Are teams allowed to compete while using a mechanism built buy another team?

For example: Team A has no way of landing and latching. Team B gives them a mechanism to attach to Team A's robot giving them the ability to land and latch.

A: While *FIRST* encourages teams to help each other improve their robots, using a completed, specially designed mechanism designed and built by another team is not allowed. Cheesecaking, as it is commonly referred to, violates the spirit of the competition as well as rules <RM02> (COTS parts) and <T7> (bringing and using only one robot).

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11-08-2018, 10:10 AM

#7

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11-12-2018, 11:13 AM

#8

Originally posted by **FTC10084**

Team Number

Q: <RG06>.b states that the team number must be visible from at least two opposite sides of the Robot (180 degrees apart).

Would having the team numbers back-to-back, for example on opposite sides of a flat board, be legal?

A: Yes, providing the Team Number is clearly visible to field personnel from two opposite sides.

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Committee Member

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11-12-2018, 11:13 AM

#9

Originally posted by **FTC10084**

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A: Yes, providing the Team Number is clearly visible to field personnel from two opposite sides.

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Messages 1

Giorgio Tsoukalos

Edit Site: Off Search [Forums](#)[Articles](#)[New Topics](#)[FIRST Tech Challenge Blog](#)[Calendar](#)[Who's Online](#)**Giorgio Tsoukalos**

Senior Member

Join Date: Nov 2013

Posts: 109

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Commercial Off the Shelf Components - Answers#1

09-19-2018, 03:45 PM

Please be sure to read the Game Manual and the responses to other questions in the forum before posting. Thank you!

Tags: None

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10-03-2018, 12:12 PM

#2 *Originally posted by **RedfishRobotics*****Linear Actuator Kits**

Some suppliers have begun offering "lift kits" to assist with the lander latching challenges (auton & end game). The kits in question generally use the rotation of a lead screw to move a lead screw nut attached to some linear extension such as an aluminum extrusion (80/20, Xrail, Etc.).

Q1: Does a kit that provides both rotational movement and X/Y movement (as described) violate RM02, which limits COTS kits to "A single degree of freedom".

Q2: Is the described kit more or less legal if it also includes an otherwise FTC legal motor or servo to rotate the lead screw?

A1: Yes

A2: The legality of the motor has no effect on the overall legality of the actuator.

Ming the MercilessGame Design
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Posts: 888

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10-11-2018, 11:55 AM

#3 *Originally posted by **FTC14534*****Linear Actuator - Revised**

Q: I know there is a question and answer regarding the COTS systems from Servocity, but I wanted to know if all of the parts are purchased separately, can they be used for the team to build their system? If so, will there be any proof required during the robot inspection to verify these parts were purchased separately?

A: The Game Design Committee has had a lot of inquiries regarding the use of linear actuators for this year's challenge. Normally we encourage teams to design and build their own mechanisms to solve the game challenges but on occasion we have allowed the use of COTS kits that provide additional capability to teams without ruining the robot design experience (for example: the TileRunner kit). Due to the overwhelming response from the FIRST Tech Challenge community, the GDC has re-evaluated the use of linear actuator systems with regard to Rule <RM02>. After discussing this issue with numerous resources and evaluating the effect on game play, the GDC has decided to allow the use of linear actuator kits.

There are a few conditions however:

1. This is a one-time exemption and not a blanket change in Rule <RM02>.
2. The linear actuators are limited to one direction of motion, no X-Y actuators.
3. The linear actuators must use legal parts, the the motors used must be from the allowed motors listed in Rule <RE09>.

The GDC would like to thank all the teams that provided positive, helpful input to the decision-making process.

Last edited by Ming the Merciless; 10-11-2018, 12:12 PM.

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10-11-2018, 12:18 PM

#4 *Originally posted by **FTC9808*****Turnbuckles**

Q: Are small turnbuckles like the ones below legal for use as lift cable tensioners?

<https://www.homedepot.com/p/Crown-Bo...7046/204273926>

A: Yes

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10-16-2018, 07:30 PM

#5 Originally posted by **FTC9819****Linear rail and Actuator Kits**Q: *We would like to ask about the legality of the following:*1- *Is the cascading rail design from Servo City is legal to use?*<https://www.servocity.com/cascading-x-rail-slide-kit>2- *Is the servo kit from Andymark legal to use?*<http://www.andymark.com/product-p/am-2297.htm>3- *Is the Linear kit V2 from REV Robotics legal to use?*<http://www.revrobotics.com/rev-45-1507/>4- *Is the servo linear it from Servo City legal to use?*<https://www.servocity.com/785-gear-rack-kit-637171>

A1: Yes

A2: Yes

A3: Yes

A4: Yes

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10-22-2018, 04:01 PM

#6 Originally posted by **FTC13438****Tank Treads**Q: *I don't see tank treads on either the legal or illegal parts list. Can my kids use these? We wanted to order the Tetrix Max Tank Tread Kit. Is that legal?*

A: Yes, tank treads are legal but they are still subject to Rule < RG01>.

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1 comment**Ming the Merciless** commented#6.1 

10-22-2018, 04:09 PM

Originally posted by **FTC13670****Versachassis**Q: *VEX is promoting a chassis kit. Is it legal for this season?*<https://www.vexrobotics.com/vexprof/...ssis-mini.html>

*Thank you,
13670*

A: Yes, the VersaChassis Mini is legal per rule <RM02>.

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Committee Member

Join Date: Sep 2010
Posts: 888

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10-29-2018, 11:40 AM

#7

Originally posted by **FTC4634**

Shock Absorbers

Q: Would these type shock absorbers be within the allowable parts? They show as NOT being oil filled and NOT pneuematically charged.

<https://www.amazon.com/XPURC-Aluminu...shock+absorber>

A: In a shock absorber, a moving piston forces air (or oil) through a series of small holes thus slowing the motion of the piston and absorbing energy. This restriction results in compressing the air and raising the internal pressure. Rule <RG01> does not allow devices that use compressed air in any form. Therefore this is not a legal COTS.

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Committee Member

Join Date: Sep 2010
Posts: 888

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10-30-2018, 04:45 PM

#8

Originally posted by **FTC12611**

Ball Caster

Q: Does this product violate "single degree of freedom"?

<https://www.pololu.com/product/950>

A: This ball caster is a legal COTS part.

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Game Design
Committee Member

Join Date: Sep 2010
Posts: 888

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10-30-2018, 06:29 PM

#9

Originally posted by **FTC12611**

Ball Caster with Bearings

Q 😊oes this product violate "single degree of freedom"?
<https://www.pololu.com/product/2692>

This has ball bearings and can move in omni directions.

A: Yes this ball caster is a legal COTS part.

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Ming the Merciless
Game Design
Committee Member

11-12-2018, 11:18 AM

#10

Join Date: Sep 2010
Posts: 888

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Originally posted by **FTC11479**

Servo Blocks

Q: *Is the Servo City servo block part # 637118 for quarter scale servos iegal?*

<https://www.servocity.com/637118>

A: Yes, this is a legal COTS.

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Giorgio Tsoukalos
Senior Member

Join Date: Nov 2013
Posts: 109

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Miscellaneous Robot Electrical Parts and Materials - #1 ▣

Answers

09-19-2018, 04:47 PM

Answers to questions about Robot Electrical Parts and Materials that do not fit into another category can be found in this section.

Tags: None

 0

Buckaroo Banzai
Game Design
Committee Member

Join Date: Sep 2010
Posts: 919

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10-03-2018, 07:29 PM #2 ▣

*Originally posted by **FTC8424***

Subject: Powered USB Hubs within Robot

Hello, GDC, thank you for a great game this year!

Question: *We're looking to use an external camera and know that we have to use an unpowered USB hub for connecting it to the Robot Controller and then connecting that hub to the REV Expansion Hub. Is this hub a legal one as long as we don't have an external battery plugged into it at all (e.g., just use it as a unpowered USB hub)?*

TUSITA USB Adaptor

Thank you!

FTC8424 Cyber Eagles

Answer: We appreciate the kind words! Yes, the above USB Hub/OTG adaptor is legal under current rules. Note that the rules for USB hubs within

the robot were updated in the 1.3 revision of Part 1 of the Game Manual. Take a look at <RE13> and <RE14>.c.iii

Last edited by Buckaroo Banzai; 10-08-2018, 11:08 PM.

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Buckaroo Banzai
Game Design
Committee Member

10-03-2018, 07:40 PM

#3

Join Date: Sep 2010
Posts: 919

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Originally posted by FTC4634

Subject: I2C to SPI Bridge Module

Question: *May we use an SC18IS602 I2C to SPI Bridge Module to control addressable LED strips?*

It seems to meet all the requirements specified by <RE12-C>:

*COTS: yes
Interface module: yes
User-programmable microprocessor: no*

Answer: The part number referenced is a IC, not a module. If it is used in a module that does not include the user programming, it would be allowed.

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Buckaroo Banzai
Game Design
Committee Member

10-08-2018, 03:10 PM

#4

Join Date: Sep 2010
Posts: 919

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Originally posted by FTC4634

Subject: Phone Flash as a Light Source

Question: *Does the phone's camera flash count as a "focused or directed" light source?*

Answer: deleted original "Not allowed" answer

Update: While the reflector in the camera flash makes it directed and focused, after discussion with the entire GDC, we have decided to reverse the decision and allow the camera flash to be used to aid vision processing. Good luck with your vision code!

Last edited by Buckaroo Banzai; 10-23-2018, 07:40 PM.

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Buckaroo Banzai
Game Design
Committee Member

10-08-2018, 03:14 PM #5

Join Date: Sep 2010
Posts: 919

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*Originally posted by **FTC4634***

Subject: Quad Alphanumeric Display Backback

Question: *May we use an Adafruit Quad Alphanumeric Display w/ I2C Backpack on the robot?*

It consists of two parts, a simple LED matrix, and an I2C interface module. This seems to satisfy the requirements of <RE12-C> but we'd just like to confirm that it's allowed.

Answer: Yes. The module described is an example of the types of modules allowed by <RE12>.c

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Buckaroo Banzai
Game Design
Committee Member

10-10-2018, 02:52 PM #6

Join Date: Sep 2010
Posts: 919

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*Originally posted by **FTC10131***

Subject: Powered USB Hubs for UVC Cameras with Modern Robotics Equipment

Question: *The recent update to Game Manual Part 1 allows powered USB hubs that connect to a REV Expansion Hub, to better power and support USB webcams.*

Are there any comparable legal configurations for using a powered USB hub with the Modern Robotics electronics? If not, is there any supported hardware that allows USB webcams to be powered and used reliably with the Modern Robotics electronics, or must teams use the REV electronics if they wish to use USB webcams?

Answer: Yes. For use in connecting/powering a USB camera, a powered USB hub may be used in a manner parallel to the recommended use for REV Expansion Hubs. Since there is no 5v auxiliary power port available, the only power option will be a USB battery pack

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Buckaroo Banzai
Game Design
Committee Member

10-16-2018, 07:52 PM #7

Join Date: Sep 2010
Posts: 919

*Originally posted by **FTC4634***

Subject: I2C Controlled LCD module

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Question

: Since alphanumeric displays with I2C interface modules are allowed, would a standard 16x2 LCD with an I2C interface module also be allowed?

Answer: <RE12>.c allows light sources controlled by compatible ports of the REV Expansion Hub or Modern Robotics Core Control Modules, this would include I2C ports

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Buckaroo Banzai

Game Design
Committee Member

Join Date: Sep 2010
Posts: 919

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10-16-2018, 07:59 PM

#8 

Originally posted by FTC10131

Subject: Modifying/Replacing the Connectors on the allowed grounding strap

RE14 I. says "Teams that have electronics with Powerpole-style connectors may also use the REV Robotics Anderson Powerpole to XT30 Adapter (REV-31-1385) in conjunction with the REV Robotics Resistive Grounding Strap." May teams also replace the XT30 adapter on the Grounding Strap with a Powerpole, per RE15? RE15 says in part "Approved electrical and electronic devices may be modified to make them more usable; ... Examples of modifications that are allowed:...Replacing or adding connectors on wires" ?

Answer: [deleted original answer]

Important Update: The previously given "Yes" answer has been updated to "No". <RE14>.I explicitly disallows use of anything other than the REV grounding strap adapter. By extension, this disallows any modifications to the grounding strap or its adapter.

Last edited by Buckaroo Banzai; 10-30-2018, 03:34 PM.

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Buckaroo Banzai

Game Design
Committee Member

Join Date: Sep 2010
Posts: 919

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10-16-2018, 08:09 PM

#9 

Originally posted by FTC8397

Subject: LED Control Electronics

Would the following be an allowed light source?

<https://www.ledsupply.com/leds/cree-...high-power-led>

Also, our plan would be to power the light source using one of the 5v Aux supplies on the Rev Expansion Hub, and to switch it on and off using one of digital ports, along with either:

- a) A transistor,*
- b) An op amp, or*
- c) A solid state relay.*

Any of these would also require current-limiting resistors.

Would these approaches be allowed?

Answer: The LED is an allowed device. The transistor, op amp and relay all fall into the category of "other electronics" and would not be allowed.

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Buckaroo Banzai
Game Design
Committee Member

10-16-2018, 08:38 PM

#10

Join Date: Sep 2010
Posts: 919

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*Originally posted by **FTC7253***

Subject: Camera Flash

Last year, there was a specific forum rules clarification allowing the use of the camera flash:

It would seem that the camera flash is no more of a directed/focused light than any LED (including the color sensor LEDs).

Please clarify/reconsider. Why was there a forum post allowing it last year, but one disallowing it this year?

The camera light can significantly improve image processing results, as it helps mitigate the effects of different lighting conditions. This affects the use of the camera for both Vuforia and other image processing (i.e. OpenCV). Under these use cases, the camera light is not being used to hinder other robots - simply to improve image capture consistency - primarily in auton where the bots will not be interacting with each other.

Velocity Vortex was a clear example of autonomous issues that can be caused by extremely varying ambient conditions. Please reconsider decisions that could go down the same road again.

Answer: In general, forum posting from prior seasons about are not automatically included into current season.

As to the camera flash, every phone flash examined included a one of several variants of parabolic reflectors on the back side of the flash LED, designed to direct and intensify the light output in a primary direction.

While the camera flash based on the above would not be allowed, In discussion with the entire GDC, we reconsidered and came to the conclusion to allow the camera flash to be used to aid vision recognition (a skill we wish to encourage among teams!).

The prior posting will be amended with a note making sure that it is clear that the flash is allowed.

Good luck with your vision code!

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Buckaroo Banzai
Game Design
Committee Member

10-16-2018, 08:38 PM

#11

Join Date: Sep 2010
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*Originally posted by **FTC7253***

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Good luck with your vision code!

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Game Design
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10-16-2018, 08:47 PM

#12

Join Date: Sep 2010
Posts: 919

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*Originally posted by **FTC4628***

Subject: Electromagnets

Are permanent electromagnets ([https://apwelectromagnets.com/perman...agnets/#filter\[attribute\]\[51\]\[120\]=120](https://apwelectromagnets.com/perman...agnets/#filter[attribute][51][120]=120)) allowed under <RM01> which specifically lists magnets or disallowed under <RE17> as they are electronics not otherwise listed in the game manual?

Answer: While magnets are allowed by <RM01>. Electromagnets (permanent or otherwise) fall into the general "Additional Electronics" covered by <RE17> and are not allowed.

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Buckaroo Banzai
Game Design
Committee Member

10-24-2018, 02:41 PM

#13 

Join Date: Sep 2010
Posts: 919

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*Originally posted by **FTC8397***

Subject: Powering LEDs from XT30 splitter

Question: *If we power an allowed light source and allowed light control module from a Rev Expansion Hub XT30 port, via a Rev XT30 Power Distribution Block, will that comply with <RE12>d.iv. ?*

Answer: Yes

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Committee Member

10-25-2018, 01:00 PM

#14 

Join Date: Sep 2010
Posts: 919

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*Originally posted by **FTC7330***

Subject: Self-Retracting Power Cables

My students are interested in using a power cable that extends and retracts on a spring to bring power to a motor. For example <https://www.amazon.com/gp/product/B0...4Q86RQ8BZE2R4F> or <https://www.amazon.com/Bayco-SL-800-...extension+cord>.

So long as wire gauge requirements are met, would such a mechanism be legal under the 1 degree of freedom COTS rule? There is an in and out motion in addition to the rotation, but we don't see this as being different from tape measures that were ruled legal in previous seasons. Thank you for your consideration.

Answer: Yes. Self-retracting cables of appropriate wire gauge are allowed

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Game Design
Committee Member

Join Date: Sep 2010
Posts: 919

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10-25-2018, 01:07 PM

#15 

*Originally posted by **FTC12676***

Subject: REV Servo Power Module and Mixing Vex 393 motors with other servos

I understand for Vex 393 motor we will have to use motor controller 29 and Rev Servo power module and there is a limitation of 2 Vex 393 per Servo power module. We are using only one Vex 393 motor so can we still use other port for 2 servos like Hitech or Rev smart servo?

Answer: Yes. But keep in mind that the Vex 393 motor consumes 1/2 of the power budget for the Servo Power Module. Other servos powered from the Servo Power Module need to be sized appropriately to ensure that the overall power budget for the module is not exceeded.

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Committee Member

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Posts: 919

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10-30-2018, 09:48 PM

#16 

*Originally posted by **FTC2844***

Subject: Replacing Bottom Plate of REV XT30 Distribution Block

Question: *Can we replace the bottom of the REV XT30 PDB with a 3d Printed replacement that includes 2 mounting holes for more secure attachment to the robot? No Electrical Modification has been done, with only the plastic casing being switched. Here is the 3d Printed part in question:*

*Originally posted by **FTC2844***

<https://www.thingiverse.com/thing:3172145>

Answer: No.

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10-30-2018, 10:38 PM

#17

Originally posted by **FTC4634**

Subject: Other Light Sources

Question: Since the ruling that disallowed using the phone's camera flash has been reversed (thanks!) would it also be allowed to use a [bright 12v LED like this](#) or the [Andymark Targeting Light](#) in conjunction with a webcam, since the webcam does not have a built-in flash?

Answer: Both appear to have lenses to focus/concentrate their light sources and are not allowed.

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10-30-2018, 10:40 PM

#18

Join Date: Sep 2010
Posts: 919

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Originally posted by **FTC4634**

Subject: Relay Use Exception?

Question: Most digital servos will continue to hold their position even after the PWM signal from the controller is stopped. One of the great features of the REV Expansion Hub is that once your program stops and the SDK sends the "failsafe" command to the Hub, the Hub will actually turn off the 5v power to the servo ports altogether. Thus, even digital servos will cease operation. **This can be a huge safety plus** at the end of the match, as a servo-controlled arm on the robot which is caught on something at the end of the match would be de-powered, which would otherwise cause the servo to be stalling, overheating, and possibly become a fire hazard while field personnel perform their post-match duties.

Unfortunately, when using the REV Servo Power Module, **this feature is lost**. Would the GDC consider making a single-case exception and allow a relay to control the 12v power to the SPM in order to re-create the aforementioned safety functionality?

Answer: No.

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Buckaroo Banzai
Game Design
Committee Member

11-07-2018, 08:44 PM

#19

Join Date: Sep 2010

Originally posted by **FTC6762**

Posts: 919

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Subject: Slip Ring Connectors

Question: Hello! The team is really enjoying the challenge this year! We have seen this answered in a previous year clarification but would like clarification that slip rings are allowed as long as they abide by the wiring gauge requirements. We are actually planning on two slip rings, one slip ring for four servos (4 servos x 3 = 12 wires) and another for the servo power block power (20 amp). Our assumption is that we would not be able to only transmit the PWM signal and that we would need to do all three wires for each servo in this case and is what we have planned for. Thank you!

Answer: Yes. Make sure that everything meets the wire gauge requirements/equivalents and that everything is well insulated

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Messages 1

Giorgio Tsoukalos

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Motors and Servos - Answers#1

09-19-2018, 04:47 PM

Answers to questions about Motors and Servos can be found in this section.

Tags: None

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10-03-2018, 06:46 PM

#2 *Originally posted by **FTC13034*****GoBilda Motors - Update****Q: Are the GoBilda 5202 Series Yellow Jacket motors legal for this season?**

A: The 12 V motors from Modern Robotics are legal and teams may place any gearboxes they want onto them. The only place where that becomes an issue is that our software comes with pre-configured motor settings that are used by the closed loop control software to do things like run to a fixed position, or to do run at a specific speed. These settings are based on the motor and gearbox (for example, the NeveRest 40 or the NeveRest 60, which are the same base motor, but with different gearboxes). If a team uses a motor with a gearbox that is different from our pre-configured settings, then they might have to do some "tuning" in the software to optimize the motor performance during closed loop control.

The following motors are pre-configured:

GoBilda 50.9:1 (Planetary)

GoBilda 53:1 (Spur)

GoBilda 26.9:1 (Planetary)

GoBilda 26:1 (Spur)

GoBilda 5.2:1 (Planetary)

It is important for teams to know that there are some potential integration issues that should be considered before deciding whether or not to use them on your robot:[LIST=1][*]The motors have different electrical 12V power connectors from the kind used with our Control System. Teams might need to purchase or make adapter cables to be able to use these motors with their Control System.[*]The encoder cables that are available for these motors have different electrical connectors from the kind used by the REV Expansion Hub. Teams might need to purchase or make adapter cables to use these encoders with a REV Expansion Hub.[*]These motors are not currently available as preset configuration options in the FIRST Tech Challenge software. Teams can select a motor from the options menu that has similar characteristics, but teams might also need to do some additional work (i.e., "tune" motor control coefficients) to optimize the motor behavior.

Last edited by Ming the Merciless; 10-07-2018, 02:04 PM.

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Ming the Merciless

Game Design
Committee Member

Join Date: Sep 2010
Posts: 888

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10-06-2018, 03:54 PM

#3

*Originally posted by **FTC3491***

Linear Servos

Q: In past seasons, the Actuonix Linear Actuators were legal, for example <http://www.andymark.com/product-p/am-3515.htm>

Can we purchase and use these linear actuators?

A: These are linear servos and are allowed under Rule <RE10>.

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Game Design
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10-07-2018, 02:10 PM

#4

*Originally posted by **FTC10131***

GoBilda Motor Update

Q: Post #2 of the Motors and Servos Answers thread states "GoBilda Motors are legal for FIRST Tech Challenge competitions." It then lists 5 motor/gearbox combinations as legal.

There are more than 5 combinations of Modern Robotics motors and goBILDA gearboxes that are currently available for purchase, and it is possible that others may be made available in the future.

Should Post #2 be interpreted as saying that any other goBILDA gearbox options are not legal? If so, can you clarify why, given that RM02 explicitly permits the use of arbitrary single speed gearboxes and that FTC teams have used Banebots and Vex

standalone gearboxes combined with other motors without issue in previous years?

If other goBILDA motor/ gearbox combinations are not legal, can teams integrate goBILDA gearboxes on any arbitrary motor in the same way that they can with Banebots and Vex gearboxes? If not, can you clarify how teams may determine what is a gearbox that is legal to use and what is a gearbox that is not legal to use?

A: Thank you for pointing out the inconsistency in the original post. That Post has been updated to include as legal all 12V GoBilda motors with any gearbox ratio. The list of "legal" motor/gearbox combinations should have stated that these are the only motors that are pre-configured in the software. That has been corrected.

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Game Design
Committee Member

10-08-2018, 03:12 PM

#5

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Posts: 919

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Originally posted by FTC5559

Subject: VEX Motor Configuration

Question: Can we plug 2 Vex 393 motors into one 29 controller?

Answer: No.<RE10> explicitly requires a Vex Motor Controller 29 for each VEX EDR 393 motor

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10-30-2018, 09:43 PM

#6

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Originally posted by FTC5559

Subject: Painting Motors

**Can we paint the motors?
Neverest, Tetrax 12v, Matrix 12v**

Answer: <RM04> allows painting of raw materials and COTS parts. While there is nothing in the rules that explicitly disallows painting motors, there are a couple of things to consider:

- the metal housing is part of the heat dissipation mechanism for the motor
- paint flaking off and leaving residue on the playing field (<RG01>.h)
- characteristics and off-gassing of paint when heated (<RG01>.c)

Messages 1

Giorgio Tsoukalos

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Control System - Answers

10-09-2018, 08:34 AM

#1

Answers to your questions about the control system.

Tags: None

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10-08-2018, 03:08 PM

#2 *Originally posted by **FTC4634*****Subject: REV Expansion Hub Connections****Question:** *Since USB hubs are allowed between the phone and the control modules for the purpose of adding a webcam, can we connect the secondary Expansion Hub the the USB hub instead of chaining it to the primary Hub over the 485 bus?***Answer:** Yes. There is nothing in the rules that prohibits using a USB hub to connect to a second Rev Expansion Hub.Like **Buckaroo Banzai**

Game Design

10-10-2018, 02:58 PM

#3

Committee Member

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*Originally posted by **FTC4634*****Subject: Mixing REV Expansion Hubs and Modern Robotics Core Control Modules****Question:** *Is using MR controllers in addition to 2 REV Hubs an allowed configuration? RE08 is unclear as to whether using MR controllers is only allowed when using them alongside a single REV Hub.***Answer:** Yes. <RE07> and <RE08> do not place limits on one type of module (REV vs. Modern Robotics) when the other is also used. Be aware that in order to use a Modern Robotics Core Control Module, teams must use a Modern Robotics Core Power Distribution Module as well.

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10-24-2018, 02:57 PM

#4

*Originally posted by **FTC4634*****Subject: Replacing the Case of a REV Expansion Hub****Question:** *Would it be allowed to 3D print a custom case for the Lynx PCB inside the Expansion Hub? This seems to be allowed by RE15 as no parts on the PCB would be modified, and simply changing the case should have no effect on safety.***Answer:** No. Replacing the case on the REV Expansion Hub is not allowed. Inspectors need to be able to clearly and quickly identify the components used in a robot.

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11-07-2018, 07:48 PM

#5

*Originally posted by **FTC5110*****Subject: Are Variants of Allowed Phones also Allowed?****Question:** *Are we permitted to use locally available variants of the Moto G5 phone such as Moto G5s? The G5s is Qualcomm MSM8937 Snapdragon 430 like the G5.***Answer:** Only the phones explicitly listed in the Game Manual have been tested and are known to work. Until other phones are tested and explicitly

approved, they are not allowed.

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Sensors - Answers

09-19-2018, 04:48 PM

#1

Answers to questions about Sensors

Tags: None

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10-03-2018, 07:32 PM

#2 *Originally posted by **FTC4634*****Subject: 3rd Party Quadrature Encoders****Question:** *May we connect 3rd party quadrature encoders to the encoder ports on the REV Hub / MR Core Motor Controller?***Answer:** There is nothing in the rules that prohibits the use of 3rd party encoders with any of the motor controller inputs. Be aware that the PID control functionality depends on the characteristics of the encoders. It is possible that detailed configuration may be necessary.*Last edited by Buckaroo Banzai; 10-08-2018, 11:09 PM.*Like

10-03-2018, 07:34 PM

#3 *Originally posted by **FTC4634*****Subject: Pixy/Pixy2****Question:** *Are the Pixy / Pixy2 sensors legal for this season as they were last year?***Answer:** Yes. As long as they remain non-user programmable.

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10-10-2018, 02:47 PM

#4 
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*Originally posted by **FTC4634*****Subject: Intelligent Sensors & User Programmable Devices re: Pixy/Pixy2****Question:** *Can the GDC please clarify the ruling that the Pixy/Pix2 are allowed "As long as they remain non-user programmable"?*

- *<RE11> makes no mention that sensors cannot be user-programmable*
- *Assuming the above was an accidental omission, that makes the Pixy/Pixy2 totally useless, since they must be programmed through PixyMon in order to be useful.*
- *If PixyMon is simply counted as an exception to "programming" it, then does that mean that we cannot use the user-created FTC firmware recommended by the manufacturer on the FIRST Robotics support page which enables better compatibility with the MR CDIM / REV Expansion Hub?*

Answer:

- *<RE17> disallows "other electronics" and provides as a partial list of examples a series of user programmable devices. Intelligent sensors fall into this same category if they include user programming capability.*
- *PixyMon is a configuration tool, not a programming tool and is allowed to be used to configure the Pixy/Pixy2 modules.*
- *Loading user-modified or third-party firmware onto any module would be a disallowed modification of the module (<RE15>)*

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10-16-2018, 08:51 PM

#5 *Originally posted by FTC5291***Subject: Optical Limit Switches as Sensors**

*Just Checking if the following sensors is legal, they do not have focused light, they are just IR senders and receivers
Opto Optical Endstop End Stop - They use a TAG to break the light to the receiver*

Example Part <https://www.ebay.com/itm/3Pcs-Opto-O...53.m2749.l2649>

Answer: Yes. These are examples of allowed sensors

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Committee Member

10-30-2018, 10:26 PM

#6 

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*Originally posted by FTC4174***Subject: Configuration of UVC Camera from Robot Controller**

My team was considering using a USB camera for our robot as allowed in <RE13>; however, the camera we want to use does not initialize in a UVC-compatible mode. It starts up in a USB "boot mode", and you have to load manufacturer-provided firmware, after which it re-enumerates as a USB UVC camera (actually two of them, as the device has two cameras). This firmware cannot be modified or programmed by us, and it acts as a normal camera after the initialization. If we wrote code to perform the initialization from the robot controller, would this camera still be considered legal?

Answer: Yes.

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 **Giorgio Tsoukalos**

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Robot Software Rules #1

09-19-2018, 04:49 PM

Answers to questions about Robot Software Rules

Tags: None

 0

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10-09-2018, 10:28 AM #2

Originally posted by **FTC7253**

Subject: Software Modification Clarification

GM1 - RS9 states

Software Modification - Teams are not allowed to modify the FIRST Tech Challenge Driver Station application or Robot Controller SDK in any fashion.

What is considered the boundary of the Robot Controller SDK? I am assuming that the intent of the rule is primarily to protect against decompilation/modification of .aar files, but would like confirmation.

Can the following components be modified:

- *gradle files (needed to include other libraries - i.e. opencv)*
- *Exposed java files in the SDK download (i.e. FtcRobotControllerActivity.java)*
- *Manifest files*
- *layout files (note - it is possible to modify the layout directly in the file, or programmatically - are either legal)*

Thanks for your time and clarification.

For the Robot Controller SDK we restrict teams from modifying the .AAR files that are distributed with the SDK. We also prohibit them from streaming non-standard (i.e. data that is not normally streamed by our apps) data. A recent update to this rule in the Game Manual Part 1 covers this in more detail.

The examples listed above (gradle files, Exposed Java files included with the SDK, Manifest files, and layout files) are okay per <RS09>.

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11-13-2018, 09:40 PM

#3 

Originally posted by **FTC12833**

Subject: Software During Init

Question: *Can TensorFlow and/or Vuforia logic/methods be performed during the Init phase of the autonomous period, or must it wait until after Play begins?*

Answer: Yes. There is nothing in the rules that prohibits the initialization of sensors (including cameras and software sensors ... i.e. vision recognition systems) during the robot initialization

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Messages 1

Giorgio Tsoukalos

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10-17-2018, 11:49 AM

#1

Answers to questions about Team Markers

Tags: None

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Senior Member

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10-17-2018, 11:38 AM

#2 *Originally posted by FTC10131***Subject: Team Marker Size****Q1:** *Rule <TM02> says the minimum size of a Team Marker is 3" x 3" by 4". How is this measured?***Q2:** *Does it need to completely fill this volume? Or must each dimension just reach that measurement at some point? Examples are a 4" tall pyramid with a 3" x 3" base (is only 3" x 3" at the bottom), or a hollow cylinder with diameter 3" and a height of 4", or even a large toy "jack: which points 3" x 3" by 4" but takes up very little volume?***Q3:** *Related question: does the Team Marker size have to stay the same for the entire match, or can a Team Marker expand beyond the maximum size after the start of the match like the Robot can?***A1:** Robot Inspectors have several ways to measure this, the easiest will be to push the Team Marker into a corner and use a ruler to measure the

length, width, and height.

A2: The Team Marker must meet or exceed all three (X, Y, Z) minimum dimensions simultaneously but it does not have to fill the entire volume. For instance, a 4.5" tall flag pole mounted on a thin, 3.1" diameter base would fulfill the requirements. Each of your examples would constitute a legal Team Marker.

A3: Once placed into play on the field, a Team Marker must fall within the allowed minimum and maximum dimensions. It cannot expand beyond the maximum size like a robot. It can, however, be compressed for easier transport but the robot must expand to a legal size when placed in the Depot (or anywhere else on the field).

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10-17-2018, 11:42 AM

#3 

Originally posted by **FTC4042**

Subject: Stored Mechanical Energy in Team Marker

Q: *Is it permitted to have stored mechanical power in your team marker, on the form of a spring-loaded gear train?*

A: Yes, a spring and gear train are allowed parts.

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Ming the Merciless

Game Design
Committee Member

Join Date: Sep 2010

Posts: 888

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10-26-2018, 12:44 PM

#4 

Originally posted by **FTC9967**

Team Marker Required?

Q: *Is the Team Marker mandatory to compete? I am unsure as the manual talks about it, but does not say it is or is not required explicitly. Just checking for the meet. Thank You!*

A: No, Teams do not have to have a Team Marker in order to compete. They just will not be eligible for the Team Marker related bonuses.

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Game Play - All Match Periods - Answers#1

09-19-2018, 03:53 PM

Official Answers to questions about Game Play can be found here.

Tags: None

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10-01-2018, 09:22 PM

#2 *Originally posted by FTC11115****Subject: <GS3> Control/Possession Limits of Minerals - A Robot exiting the Crater accidentally sweeps some Minerals out of the Crater.****While exiting the Crater, a Robot Possesses two Minerals and it accidentally sweeps additional Minerals out, these Minerals roll happily to finally rest in the middle of the field. They are now easier to reach than Minerals in the Crater but the Robot clearly wasn't doing this intentionally.****Question 1: Do these Minerals count as Controlling?******Question 2: If yes: any guidance on when they are deemed no longer Controlled (e.g. once they stop moving or always considered in control)?*****Answer 1:** The action described violates rule <GS3> because the Robot Controls, via Possession plus Herding, more than two Minerals. Referees may excuse infrequent, unintended removal of a few Minerals from a Crater by a Robot. Removal of excess Minerals during each Robot exit from a

Crater, or the removal of three or more Minerals above the allowed maximum for a single occurrence of Robot egress will likely be Penalized for violating rule <GS3>.

Answer 2: The Herding action ends when the Minerals stop moving.

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10-01-2018, 09:47 PM

#3

*Originally posted by **FTC5291***

Subject: Incidental Robot contact with the Lander while Latched.

In the rules regarding Latched, it talks about incidental contact with the Lander. Many Robots are being designed with the Robot weight resting against a Lander side panel, With discussion, there is concern that this is not incidental contact.

Question 1: *Is a Robot allowed to lean/rest against the vertical outward facing surface of a Lander side panel while the Robot is Completely Supported by the Lander Support Bracket?*

Question 2: *Some designs by the teams use wheels to help guide the Robot up and down the Lander, is this considered incidental contact and thus legal?*

Question 3: *Is a Robot that is Completely Supported by the Lander Support Bracket with virtually no contact with the Lander side panel considered to be legally Latched?*

Answer 1: Yes

Answer 2: Yes

Answer 3: Yes

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10-01-2018, 09:56 PM

#4

*Originally posted by **FTC5291***

Subject: What is the Crater boundary for the purpose of determining Inside?

Question: *What defines the vertical plane for Parking In or Completely In the Crater?*

Answer: The outside edge of the Crater Rim.

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10-03-2018, 04:20 PM

#5

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Originally posted by **FTC4042**

Subject: <G16> Robots Grasping Game Elements - Robot resting on the Lander.

Question: *If part of the Robot is resting on a Game Element, such as a part of the Lander that isn't the Lander Support Bracket, but would be removable without use of significant force (ie: just resting on the top of the Lander), does that violate <G16>?*

Answer: No

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10-03-2018, 04:49 PM

#6 

Originally posted by **R2D2**

Subject: <GS10> Robot Scoring while in Crater and <GS11> Obstructing Travel Between Lander and Crater

Question: *Can a Robot extend into the Landing Zone from the Crater, to be protected under the scoring clause of GS6, as it has broken the vertical boundary of the Lander Zone, while having the infinite number of minerals due to the ruling in GS3?*

Answer: The action describes violates rule <GS11>. If the Robot attempts to Score, it violates rule <GS10>.

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10-03-2018, 05:41 PM

#7 

Originally posted by **FTC11115**

Subject: <GS3> Control/Possession Limits of Minerals

Question 1: *Given there are relaxed limits to Controlling Minerals in the Crater, would it be allowed to Control the majority of the Minerals indefinitely?*

Question 2: *If not, could you give guidance on what the limit is (quantity restriction? Time restriction?)*

Answer 1: No. Per rule <GS3>, Herding or directing multiple Minerals beyond the allotted maximum to gain a strategic advantage (i.e., Scoring, accessibility, defense) is not allowed.

Answer 2: Referees will issue a warning to the Drive Team after it is clear that they are no longer attempting to stop Controlling/Possessing excess Minerals. Following the warning, the Drive Team has 5 seconds to comply with rule <GS3> constraints before Penalties are assessed.

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10-15-2018, 03:04 PM

#8

Originally posted by **FTC7253**

Subject: Questions about Latched, Landing, and Deployed

Game Manual Part 2 definition of latched and section 1.5.1.1 include the following: A Robot is considered Latched when it is Completely Supported by the Lander Support Bracket on the Lander and is not in contact with any other Game Element, Robot, or the Playing Field Floor. Incidental contact with Scoring Elements, the Lander sides or legs is allowed.

Question 1: Can a definition of incidental, as it relates to this scenario, be provided?

Question 2: What criteria will the Referees use to evaluate a legal latch release/landing?

Question 3: Will it be legal if: A robot is attached to the lander support bracket such that all of the vertical component of force resulting from weight of the robot is supported by the bracket, but the robot hangs at a non-vertical angle, thereby applying a horizontal force against the lander side.

Answer 1: A definition of incidental in this context is contact with the Lander that is accompanying but not a major part of being Latched. For example, a) a Robot resting against the Lander's outward vertical side panel is allowed; b) Robot weight supported by the top of the Lander is not allowed.

Answer 2: The criteria for Landing is clearly described in section 1.5.2 of the Game Manual Part 2.

Answer 3: Yes

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10-15-2018, 03:20 PM

#9

Originally posted by **FTC7253**

Subject: Controlling Minerals while the Robot is In a Crater

Question 1: Can a robot intentionally cause minerals to roll towards the depot from inside the crater, as long as it is not in contact with more than 2 minerals that have cleared the crater boundary?

Question 2: Can a robot launch minerals into the lander if it has components in both the crater and the lander area simultaneously.

Question 3: Does control of a mineral end when there is no longer contact with the robot?

Question 4: Can a robot impel minerals towards the crater boundary with the intent of removing the minerals from the crater?

Answer 1: No, per rule <GS10>.

Answer 2: No, per rule <GS10>.

Answer 3: No

Answer 4: No

Last edited by Buzz; 10-24-2018, 02:24 PM. Reason: Corrected formatting issue.

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10-15-2018, 05:09 PM

#10

Originally posted by FTC12789

Subject: Scoring Game Elements during multiple Match Periods

Question: Does a Mineral scored during one period score again during the next period - for example, if a Mineral is scored during Autonomous, would the Alliance receive additional points for that same Mineral during the Driver-Controlled Period?

Answer: No

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10-15-2018, 06:03 PM

#11

Originally posted by FTC5559

Subject: Robot Entanglement with a Playing Field Element

Since the ring of the release pin for the mineral release ramps in the lander are exposed, a robot might get entangled.

Question: If such a scenario occurs, would that be a field fault, penalty, match and scoring continues?

Answer: Match play will continue. The Mineral release pin is a feature of the Lander. Robots should be designed and operated to avoid entanglement with this device.

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10-15-2018, 06:50 PM

#12

Originally posted by FTC12692

Subject: <GS11> Obstructing Travel Between Lander and Crater

Question 1: If a robot has expanded to 36" wide and wants to

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drive between the crater and the lander, does a robot have to move to get out of its way since there is no room for the large robot?

Question 2: *If there is room for an 18"x18"x18" robot to go past the lander while you are in the area between the lander and the crater, but they want to go exactly where you are, are you obstructing another robot's path of travel?*

Question 3: *In years past if there was another path they could take to get to objects then it was not considered blocking. What is the difference between blocking and obstructing?*

Answer 1: No. The intent of rule <GS11> is to allow unobstructed travel by Robots sized no larger than an 18 inch cube.

Answer 2: No

Answer 3: Obstructing in the context of rule <GS11> is a Robot preventing an open path of travel for another Robot in the Area between the Lander and Crater. The open path does not have to be the Robot's preferred path through this protected Area. Blocking is defined in section 1.4 of the Game Manual Part 2.

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10-15-2018, 07:36 PM

#13 

Originally posted by FTC5291

Subject: Placing Minerals in the Depot or Lander

Question: *Is sliding the Minerals out of an intake by either reversing the intake, dumping via gravity, using a servo to push from the intake into the depot or lander considered placing?*

Answer: Yes

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10-15-2018, 08:01 PM

#14 

Originally posted by FTC10131

Subject: <GS5> Blocking Access to both of an Alliance's sides of the Lander and <GS6> Interfering with Scoring at the Lander

If a robot parks under the lander in the last seconds of the End Game, it may be able to prevent both opposing robots from accessing their lander brackets and thus latching. The rules appear to say that this action would result in a 40 point Major Penalty. But as this action would prevent 100 points scored by the opposing robots, it would appear that this strategy could be numerically worthwhile.

Question: Are there other penalties that should be called in such a scenario that would cost the offender more than the 100 points gained and thus make this action numerically not worthwhile?

Answer: The action described in the scenario should be Penalized for violating both <GS5> and <GS6> for each opposing Alliance Robot that attempts to access the Lander to Score. The Penalty for obstructing two opposing Alliance Robots in this manner is 160 points plus additional Minor Penalties every five seconds as described in the two rules. Repeated violations of this type are likely to be considered intentional rule violations and additionally Penalized as egregious behavior.

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10-15-2018, 10:12 PM

#15

Originally posted by FTC5501

Subject: <GS6> Interfering with Scoring at the Lander - Robot running into the Lander

Question: We have found that the lander has a lot of side to side movement. If a robot is running into the lander and causing it to sway back and forth, will this be considered interference with latching and/or scoring minerals?

Answer: Robot interaction with the Lander while it is attempting to Score is likely to cause some Lander motion. This motion is expected and teams should design and operate their Robot accordingly. A Robot that is "running into the Lander" without an intent to Score while an opposing Alliance Robot is attempting to Score a Lander achievement will probably be viewed by Referees as a violation of rule <GS6>.

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10-30-2018, 11:44 PM

#16

Originally posted by FTC7244

Subject: <GS3> Control/Possession Limits of Minerals - Minerals In a Crater

In our current design we have a mechanism that is as follows:

We suck in two minerals located in the crater into a vertical chamber and if needed we will intake a third item that pushes out the first item. This can be used to prevent holding more than two for a extended time as well as helps us quickly sort the minerals.

Question: Is sucking in a third mineral on purpose and using said mineral to eject another mineral legal?

Answer: The Robot's actions described in the scenario do not violate the

Mineral Control/Possession rule <GS3>, provided that the Minerals remain In the Crater during this action.

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11-05-2018, 07:23 PM

#17 

Originally posted by FTC12993

Subject: <GS3> Control/Possession Limits of Minerals - Minerals in a Depot

Question: *Can a Robot incur a major penalty for driving into its own depot, carrying two minerals, but accidentally pushing a mineral that was already in the depot, thus controlling 3 scoring items.*

Answer: The Robot in this scenario does not violate rule <GS3>. This ruling does not apply to a Robot in the opposing Alliance's Depot.

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11-05-2018, 09:18 PM

#18 

Originally posted by JIRodriguez72

Subject: <GS9> Launching Game Elements - Team Marker falling off a Robot

Question: *Our team maker fell off of our robot during the driver-control period. Is this a violation of rule <GS9> for "launching" a game element?*

Answer: A <GS9> Penalty should not be assessed for a Team Marker that falls off of a Robot.

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Scoring - Answers

09-19-2018, 03:56 PM

#1

Official Answers to questions about Scoring can be found here.

Tags: None

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10-16-2018, 05:48 PM

#2 *Originally posted by FTC14019****Subject: <G14> Certifying the Score at Match End - Certifying the Score****According to <G14>, the rule first states that scores will be certified at the end of the match as quickly as possible, but then states that scoring elements will not be recounted at the end of the match. This could allow for there to be a mistake in score tracking.****Question 1:*** *What is included in certifying the score?****Question 2:*** *What is the reasoning behind not recounting scoring elements?***Answer 1:** After the conclusion of the Match, the Head Referee or a designated Referee will consult with the scoring Referees to ensure the status of the Playing Field has been recorded correctly, and that all Penalties have been recorded properly.**Answer 2:** This is the Game Rules thread of the Rover Ruckus Q&A Forum and this is not a game play question.

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Pre-Match - Answers #1

09-19-2018, 03:54 PM

Official Answers to questions about what happens Pre-Match can be found here.

Tags: None

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10-16-2018, 05:30 PM #2

Originally posted by **FTC10084**

Subject: Pre-Match Robot Initialization

Assuming that we don't violate rule <G3> by delaying the start of the match, are either of the following legal?

Question 1: Initializing the robot off, but next to, the field before placing the robot on the field.

Question 2: Running a program on the robot off, but next to, the field prior to placing the robot on the field.

Answer 1: To safely move the Robot from the queue to the Playing Field, the Robot main power (12VDC) must remain OFF until the Robot is placed Completely Inside the Playing Field. The Driver Station and Robot Controller Android devices should be powered on before the Robot arrives at the Playing Field.

Answer 2: This action is allowed if the Robot main power (12VDC) remains OFF until the Robot is placed Completely Inside the Playing Field. Of course, the benefit of running a program on the Robot Controller is limited with the Robot main power (12VDC) turned OFF.

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10-23-2018, 03:26 PM

#3 

Originally posted by **FTC4634**

Subject: <G3> Pre-Match Robot Placement - Using the Playing Field Wall to calibrate sensors

Question: Is it allowed to align the robot with the Playing Field Wall during Pre-Match Setup in order to calibrate sensors (such as a gyroscope)?

Answer: Yes, provided that the Robot is completely In the Playing Field and the action doesn't unnecessarily delay the beginning of a Match.

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10-23-2018, 03:33 PM

#4 

Originally posted by **FTC4634**

Subject: Pre-Match Robot Setup - Robot Motion

Question 1: Do robots need to be motionless prior to the start of the match?

Question 2: For example, would a continuously sweeping servo while waiting for the start of the match be allowed? (Assuming that the robot stays within the size constraints, of course).

Answer 1: Yes
Answer 2: No

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10-23-2018, 03:52 PM

#5

Originally posted by FTC5501

Subject: <G3> Pre-Match Robot Placement and <G5> RobotSetup/Alignment - Robot lifting itself during Pre-Match setup

Question: During pre-match setup, are we allowed to sit our robot on the floor in our alliance's Landing Zone with the lifting device extended, initialize our program, which in turn would latch on to the lander and pull it up into the starting position? We would wait until the robot is completely in the field before turning it on and the process would not delay the start of the match. After initialization the robot would be latched and within the 18" sizing constraint. Thanks!

Answer: Yes, provided that the Drive Team using this method:

- Makes an effort to be the first one on the Playing Field;
- Notifies field personnel and the other Drive Teams about what they are doing; and
- Has a Drive Team member as a safety lookout/guard as the Robot's init routine executes.

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11-05-2018, 05:25 PM

#6

Originally posted by FTC13259

Subject: Pre-Match Robot Set-up - Contact with an opposing Alliance Robot

Question: At the start of the match, may robots that are hanging-touch the opposing alliances robot underneath the Lander. I.e. it's quite possible that hanging robots will cross over the red blue dividing line. Assuming that there is no entanglement issues-- is this a valid starting situation.

Answer: A Robot may not contact another Robot before the start of the Match.

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11-05-2018, 06:14 PM

#7

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*Originally posted by **FTC12971***

Subject: Pre-Match Robot Set-up - Latched Robot "drifts down" before the start of the Match

Question: *If a robot is correctly latched to the lander - 4 or more inches off the floor, weight completely supported by bracket, no more than 18" tall at the time that the teams initialize autonomous, and then the robot drifts down during randomization and before the 3-2-1 autonomous start countdown, what is the consequence?*

Answer: If the Robot starts "drifting down" after a Referee notifies the Drive Teams that Robots are in a "hands-off" state, the Robot may play the Match, however it is not eligible to earn the Autonomous Landing Score.

Rule <G4> is violated if the Robot is not able to remain within the 18-inch cube Robot starting volume constraint during the time before a Referee notifies the Drive Teams that Robots are in a "hands-off" state.

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11-05-2018, 09:41 PM

#8 

*Originally posted by **FTC9819***

Subject: Robot and Drive Team starting locations

Question 1: *May Drive Teams select their robot's field starting position or is the starting location mandated by the match schedule?*

Question 2: *May Drive Teams select where they stand in the Alliance Station?*

Thank you for clarifying!!!

Answer 1: Drive Teams may select either of their Alliance specific starting locations for their Robots. Alliance Drive Teams should agree to their respective Robot starting locations before they approach the competition Playing Field to set up for a Match.

Answer 2: No, rule <G3> states that "Drive Teams must stand Completely inside the Alliance Station at the location (Station one or Station two) specified by the Qualification Match schedule." Station one is the location closest to the audience. Drive Teams standing in the correct location help the Emcee, Game Announcer, and other field personnel perform their tasks.

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11-06-2018, 07:36 PM

#9 

*Originally posted by **FTC10131***

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Subject: Pre-Match Robot setup - Confirming that a Robot is legally Latched to the Lander

We noticed many matches this weekend where pre-match, robots were latched to the Lander and within an 18" cube for size, but because the Lander walls bent in and the robot leaned, the robot was not 4" off the ground at the start of Autonomous. In most cases, robots that Landed from this position were still given credit for the Landing achievement.

Question: *Will refs do anything to measure the pre-match starting configuration of robots to see if Latched robots are starting 4" off the ground (like slide a 4" tall board under the robots)? How will refs ensure that the 4" rule is being met? Or will robots that are visibly at least a few inches off the ground pre-match and Land from that position be given credit for the Landing achievement?*

Answer: Referees are expected to verify that Robots are legally setup to start a Match. This includes determining that a Robot satisfies one of the pre-match starting options described in Section 1.5.1 of the Game Manual Part 2. Robots that are less than 4-inches above the Playing Field Floor when a Match starts are not eligible to earn the Autonomous Landing Score.

Referees may use a custom measuring tool, tape measure, etc. to verify compliance with the 4-inch Robot elevation requirement.

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#10 

Originally posted by FTC9849

Subject: Pre-Match Robot Setup - Latched Robot Encroaching Into the opposing Alliance's Landing Zone

Question: *Our robot design has a lift mechanism and latch that places about half of our robot under the lander when we start autonomous. Part of our robot will go over the line separating the landing zones. According to Game Manual Part 2, section 1.5.1, if you start the match deployed, you must be outside of the opposing Alliance's Landing Zone. There is no similar restriction when you are latched. Would a robot design that encroaches on the opposing Alliance's Landing Zone while latched be legal and not breaking any game rules. Thanks for your help and all you do!*

Answer: Thank you for alerting the GDC to this discrepancy. Robots that are Latched to the Lander must start Outside the opposing Alliance's Landing Zone.

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Yesterday, 06:33 PM

#11 

Originally posted by FTC10131

Join Date: Sep 2010
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Subject: Pre-Match Robot Setup - Motionless Robot with power applied to a DC Motor

Question 1: Are robots allowed to provide power to a DC Motor and leave the motor in an unmoving, stalled state pre-match?

Question 2: Some landing/latching mechanism designs may not hold their position unless some power is applied to a DC Motor. We note that LinearOpModes can power motors before a match starts, and we wonder if there are any concerns regarding battery, motor, and heat-dissipation safety/health with leaving a motor powered and unmoving for an extended period of time prior to the start of a match.

Answer 1: Yes, provided that the Robot is motionless and no other rules are violated.

Answer 2: In general, stalling a DC Motor should be avoided due to the issues raised in the question.

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Autonomous Period - Answers#1

09-19-2018, 03:54 PM

Official Answers to questions about the Autonomous Period can be found here.

Tags: None

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10-03-2018, 04:16 PM

#2 *Originally posted by **FTC4042******Subject: Self-propelled Team Marker******Question:*** *If a Team Marker uses stored mechanical power to propel itself from the Lander area into the Depot, would this count as being placed into the depot and receive 15 points?***Answer:** NoLike **Buzz**Game Design
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10-03-2018, 05:08 PM

#3 *Originally posted by **FTC11104******Subject: Rolling a Team Marker into a Depot.***

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In the 1.5.2 Autonomous Period section of Game Manual Part 1 states that "The Team Marker may only be delivered by placing it into the Depot. Launching, shooting, throwing, etc. of a Team Marker is not allowed".

Question 1: *Is rolling the Team Marker across the field and into a Depot an allowed Scoring method?*

Question 2: *What does "placing" as mentioned the 1.5.2 Autonomous Period section require?*

Answer 1: No

Answer 2: The Team Marker should be deployed without a noticeable horizontal release motion. Small, inconsequential horizontal motion of a deployed Team Marker is allowed.

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10-15-2018, 04:44 PM

#4 *Originally posted by **FTC10673*****Subject: Delivering a Team Marker**

The rule states that The Team Marker may only be delivered by placing it into the Depot. Launching, shooting, throwing, etc. of a Team Marker is not allowed.

Question 1: *May a team drop their team marker into their depot using gravity?*

Question 2: *May a team use gravity to roll their marker into their depot?*

Question 3: *Must part of the robot be in the depot to place the team marker?*

Answer 1: Yes**Answer 2:** No**Answer 3:** No

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10-15-2018, 06:10 PM

#5 *Originally posted by **FTC14019*****Subject: Rolling a Team Marker into the Depot**

Earlier, team 1104 asked, "Is rolling the Team Marker across the field and into a Depot an allowed Scoring method?" The response was No.

Question: *Does a team marker with rollers on the bottom of it and being pushed across the field by a robot count as "rolling" as long as the team marker is secure on the robot?*

Answer: The action described is allowed if the Team Marker is In the Depot when it disengages from the Robot.

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10-15-2018, 07:09 PM

#6 

*Originally posted by **FTC13513***

Subject: Parking in a Crater

Question 1: Are robots allowed to park in either crater in the autonomous period?

Question 2: By parking quickly in a crater, is it possible to occupy another team's anticipated parking spot?

Answer 1: Yes

Answer 2: Yes

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10-15-2018, 07:12 PM

#7 

*Originally posted by **FTC13513***

Subject: Robot moving the Gold in both of the Sample Fields for their Alliance

Question: May a single robot knock off both of their alliance's gold minerals in autonomous?

Answer: Yes

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10-15-2018, 07:24 PM

#8 

Originally posted by **FTC5291**

Subject: Sliding the Team Marker out of the Robot

Question: *Is sliding the team marker from the robot allowed, ie, we planned on using a servo to push the team marker off the robot into the depot. This would have been the same way teams used a conveyor belt to place glyphs into the Cryptobox, they were pushed off the end of the robot.*

Answer: Yes, provided that the Team Marker is In the Depot when it is released from the Robot.

Last edited by Buzz; 10-15-2018, 09:46 PM.

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10-15-2018, 08:19 PM

#9 

Originally posted by **FTC5501**

Subject: <GS2> Autonomous Period Robot Interference - Sample Field

Question: *During the autonomous period, if we are attempting to park our robot in the crater closest to the opposing alliance's side of the field and we knock off their silver mineral, how will that be handled? According to GS2 we would not be assessed a penalty because we are in the process of scoring in a crater and are exempt from this rule.*

Answer: This action violates rule <GS2> for Interfering with the opposing Alliance's Sample Field. The exemption for Robots that are attempting to Score in a Crater does not apply.

Note from the GDC: Rule <GS2> begins with: "Robots may not Interfere with the opposing Alliance's Scoring attempts or Sample Field during the Autonomous Period." Later in the rule the GDC emphasizes that the intent of this rule is to "allow Robots to Score their Autonomous Points without defensive play by the opposing Alliance." When the GDC wrote the rule, we recognized that without further clarification for the part of the rule that states: "Interfering with the opposing Alliance's Scoring attempts [is not allowed]," some Autonomous Scoring achievements would be unplayable and/or difficult for a Referee to apply rule <GS2> to the correct Robot. For example, Robots on opposing Alliances are likely to interact while attempting to Park In the same Alliance neutral Crater. To avoid rule <GS2> Penalties for this situation, the GDC added the statement: "Robots attempting to Score in a Crater are exempt from this rule." The GDC's intent to allow Robots to Score in a Crater without violating rule <GS2> is explained further in the rule's Orange Box.

A Robot driving through an opposing Alliance's Sample Field and dislodging a Silver Mineral is clearly not currently attempting to Score in a Crater; it is violating the upfront statement in rule <GS2> that Interfering with the opposing Alliance's Sample Field is not allowed. Applying a rule <GS2>

violation consequence at the point in time that the Silver Mineral is dislodged is not influenced by the Robot at a later time attempting to Score in a Crater. In this post's scenario, the exemption to rule <GS2> for Robots that are attempting to Score in a Crater does not apply until after the Silver Mineral is moved by the defensive Robot and it is clear to a Referee that the Robot is attempting to Score in a Crater.

The Robot's actions described in the scenario above, clearly violates rule <GS2> because the Robot Interferes with the opposing Alliance's Sample Field (i.e., a defensive action) when the Silver Mineral is moved from its starting location.

Last edited by Buzz; 11-13-2018, 10:22 PM. Reason: Added the postscript note from the GDC.

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10-23-2018, 03:38 PM

#10

Originally posted by FTC8397

Subject: Robot and Team Marker In the Depot during deployment

Question: *If the robot is in the depot and the team marker is also already in the depot (but still loaded on the robot), is it legal to deploy the team marker by rolling it off of the robot (with a horizontal and vertical component of rolling motion)?*

Answer: Yes, this satisfies the intent of the Game Design Committee.

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11-06-2018, 08:44 PM

#11

Originally posted by FTC7253

Subject: <GS2> Autonomous Period Robot Interference - Interfering with an opposing Alliance's Sample Field

Game Rules ->Autonomous Period Answers -> Post #9 (<https://ftcforum.usfirst.org/forum/t...6513#post66513>) indicates that knocking minerals off an opponents sampling field will earn a penalty - regardless of whether a robot is attempting to score in the crater. This seems clear, however, it apparently is not clear enough based on our experience.

A further clarification is needed...

Question: *Should a <GS2> penalty be imposed if a robot removes a mineral from their opposing alliances sampling field in autonomous mode, regardless of the intent of their current activity, and regardless of whether or not the gold mineral has been removed from that field?*

Answer: Yes

Last edited by Buzz; 11-06-2018, 08:47 PM.

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11-09-2018, 03:52 PM

#12 

Originally posted by FTC10131

Subject: Sample Field Scoring and rule <GS2> Autonomous Period Robot Interference: Sample Field

Question 1: *Does the Autonomous Sample Field achievement get scored at the instant it occurs or at the End of the Autonomous Period?*

Question 2: *If a robot removes the Gold mineral from a Sample Field but then later that robot or their partner removes a Silver mineral from the same field, do they get points for the achievement?*

Question 3: *A red alliance robot removes the Gold mineral from their Sample Field. A blue alliance robot moves a Silver mineral which then rolls to the red side and dislodges a Silver mineral from the same red Sample Field. Does the red alliance get autonomous points for the Sample Field achievement that now has both 1 Gold and 1 Silver no longer in their starting positions? Does the blue alliance get a penalty for this?*

Question 4: *A red alliance robot does NOT attempt to remove the Gold mineral from their Sample Field. A blue alliance robot moves a Silver mineral which then rolls to the red side and dislodges a Silver mineral from the same red Sample Field. Does the blue alliance get a penalty for this?*

Answer 1: The Autonomous Period Sample Field achievement Score is finalized based on the locations of the Sample Field Minerals at the end of the Autonomous Period.

Answer 2: No

Answer 3: A Sample Field at the end of the Autonomous Period that has one or two Silver Minerals removed from their respective taped Areas has zero Score value, regardless of how the Silver Minerals are removed from their taped Areas.

If the Blue Alliance Robot moves a Silver Mineral off of its mark in their Alliance's Sample Field and it meanders around, bouncing off other objects (Playing Field Walls, Minerals, Lander Legs, Crater Rims, etc.) before hitting and moving an opposing Alliance Silver Mineral, Referees will likely view this action as being Inadvertent and not Penalized for violating rule <GS2>. If instead, the Silver Mineral follows a direct path to dislodging the opposing Alliance's Silver Mineral, the Referees may or may not view the action as violating rule <GS2>. This decision will be determined by how the Referees regard the action. A <GS2> Penalty will be assessed if the Referee views the action as a planned strategy. No <GS2> Penalty will be assessed if the

Referee views the action as Inadvertent.

Answer 4: Rule <GS2> has a provision for Referees to not award a Penalty per rule <G30> if the actions are Inadvertent and Inconsequential. Referees are likely to view the random travel of the Silver Mineral to be Inadvertent and the action is Inconsequential because the Gold Mineral was not removed from the Sample Field by a Red Alliance Robot. If the Referee views the Blue Alliance Robot's actions as not being a planned strategy to interfere with the opposing Alliance's Sample Field, a <GS32> Penalty should not be assessed.

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Yesterday, 06:07 PM

#13 

*Originally posted by **FTC12823***

Subject: Team Marker Scoring/Claiming examples

Question 1: *If a robot drops a marker in the depot and it is knocked out by their alliance partner before the end of autonomous, will it count as scored?*

Question 2: *If the situation above occurs, and the second robot also successfully scores its team marker, will the depot be considered completely claimed?*

Answer 1: Yes

Answer 2: Yes

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Driver Controlled Period - Answers#1

09-19-2018, 03:55 PM

Official Answers to questions about the Driver Controlled Period can be found here.

Tags: None

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10-26-2018, 08:09 PM

#2 *Originally posted by **FTC12833*****Subject: <GS11> Obstructing Travel Between Lander and Crater***We are looking for clarification on a robot "obstructing travel between lander and crater" in <GS11>.***Question 1:** *Is it considered as obstructing another robot's path of travel even if no other robot is trying to get to that area?***Question 2:** *In other words, can a robot stay in that area more than 5 seconds at a time, and perhaps for the entire match, as long as no other robot is trying to get through?***Answer 1:** No**Answer 2:** Yes

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10-28-2018, 09:59 PM

#3 *Originally posted by FTC10131***Subject: <GS7> Latching before the End Game**

Question 1: *If during the driver-controlled period, a team supports some or all of their weight on the Lander Support Bracket but then later moves so no weight is supported by the Lander Support Bracket and no contact is being made with the Bracket, is the team eligible to Latch on during End Game and receive the 50 Latching points, or does GS7 apply preventing the team from scoring the 50 points? Examples here might be a robot that didn't fully deploy during autonomous but deploys in the first 10 seconds of the driver-controlled period, or a robot that, while scoring minerals in the Lander during the driver-controlled period, accidentally connects to the Lander Support Bracket for a few seconds but then releases fully and moves away from the lander.*

Question 2: *During autonomous, a robot lands but is unable to fully separate from the Lander Support Bracket. All of the weight of the robot is supported by the playing field floor but the robot remains in contact with the Bracket for all of the driver-controlled period. Is the robot eligible for the End Game 50 Latching points if during the End Game the robot re-supports all of its weight back onto the Lander Support Bracket and is fully supported by the Bracket at the end of the match?*

Answer 1: A Robot that doesn't fully Deploy from the Lander during the Autonomous Period may separate from the Lander during the Driver-Controlled Period to become eligible to earn the End Game Latching Score.

A Deployed Robot is not allowed to intentionally Support any portion of their weight with the Lander Support Bracket prior to the start of the End Game per rule <GS7>. Contacting the Lander Support Bracket while Scoring Minerals is allowed. If the Robot's Latching mechanism attaches to the Lander Support Bracket while the Robot is Scoring Minerals, the Referees will likely consider this to be a violation of rule <GS7>.

Answer 2: In this scenario, if the Lander Support Bracket supports any portion of the Robot's weight it violates rule <GS7>. For example, a Robot resting on the Playing Field Floor and tethered to the Lander Support Bracket using a hook and string is partially supported by the Lander Support Bracket.

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10-30-2018, 02:37 PM

#4 *Originally posted by FTC10131***Subject: <GS7> Latching before the End Game**

*First, thank you for your answer to our previous question on GS7.
Follow up questions:*

Question 1: GS7 says "Deployed Robots are not allowed to intentionally Support any portion of their weight with the Lander Support Bracket prior to the start of the End Game. Robots that attempt to Latch to the Lander Support Bracket before the start of the End Game are not eligible to Score the End Game Latching achievement." Can you clarify what "intentionally" means in this rule, or give an example of where intentionally comes into play? For example, if a team lands during autonomous but is not able to separate from the Lander due to a malfunction in their bracket connection or robot, does this count as intentionally supporting their weight prior to End Game in GS7? Is a robot in this scenario able to simply re-Latch and score 50 points in End Game or not?

Question 2: If a team lands during autonomous but is not able to separate from the Lander due to a malfunction, but their connection does NOT place any weight on the bracket (e.g., a hook on an arm that is completely supported by the robot and arm), are they eligible for the Latching achievement in the End Game?

Question 3: Must a robot completely separate from the Lander Bracket at some point during the match in order to be eligible for the Latching achievement in End Game? [We ask because the Game Manual appears to say that a robot must be Deployed, and Deployed is defined as "Not Latched," and Latched is defined as "Fully Supported by the Lander Bracket," so from these definitions, it would seem as though a robot could be Deployed if it is not fully supported by the Lander Bracket even if it is still attached to the Bracket in some way as long as it is no longer Fully Supported by the Bracket.]

Answer 1: In the context of this rule, "intentional" is a "deliberate" action (i.e., "done on purpose"). The Robot in this scenario violates rule <GS7> and is therefore not eligible to earn the End Game Latching Score.

Answer 2: Technically, the Robot described in this scenario is not violating rule <GS7>. However, Robot actions need to be clear/obvious to a Referee standing outside the Playing Field Wall. It is possible that a Referee viewing this Robot interacting with the Lander Support Bracket will consider this a violation of rule <GS7>.

Answer 3: Yes, because of rule <GS7>. Deployed Robots are not allowed to intentionally Support any portion of their weight with the Lander Support Bracket prior to the start of the End Game.

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11-06-2018, 09:09 PM

#5 

Originally posted by **FTC7253**

Subject: <GS3> Control/Possession Limits of Minerals

In match during a tournament this weekend, our alliance partner was assessed a penalty for controlling too many minerals. They were collecting 2 minerals from the opposing alliances depot with an active intake. During the process, due to the density/proximity of minerals in the depot, their chassis moved minerals [without de-

scoring them] while their intake held two minerals they had just acquired. The robot was attempting to leave the depot when this happened, and the contact with the additional minerals was incidental to their acquisition and de-scoring of the 2 possessed minerals. Should this be considered a penalty?

Answer: The Robot's actions described in this scenario do not violate rule <GS3>. The Referee watching the Robot's actions may have viewed the action differently and correctly called a Penalty for violating rule <GS3>.

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End Game - Answers

09-19-2018, 03:55 PM

#1

Official Answers to questions about the End Game can be found here.

Tags: None

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10-04-2018, 12:19 PM

#2 *Originally posted by **FTC5290******Subject: End Game Robot elevation off of the Playing Field Floor while Latched.******Question:*** *Is there a minimum distance the robot must be off the playing field floor at the end of the Match to achieve the 50pt score? In the starting position, it clearly indicates a minimum of 4" but there is not such specific value for End Game.***Answer:** No. Keep in mind that the determination of Latched is decided by Earthlings observing the Robot from outside the Playing Field Wall at the end of the Match (i.e., Match Time = 0). Teams are encouraged to make the height above the Playing Field Floor obvious and unambiguous.Like **Buzz**

10-15-2018, 06:54 PM

#3

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Originally posted by **FTC10131**

Subject: Scoring a Robot that is Latched at the End of the Match

Game Manual Part 2 section 1.5.4 states in part, "Points are awarded at the End of the Match for the following End Game achievements..." and "End of the Match" is defined as "The moment when a Match timer reaches 0:00."

Question: *To clarify, does this mean that a robot does not need to stay Latched and come to rest Latched after the end of the match when motors have been disabled to earn End Game Latching points, but merely needs to be Latched at the moment the match timer reaches 0:00?*

Answer: Yes

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11-05-2018, 05:50 PM

#4 

Originally posted by **FTC14374**

Subject: Latched Robot - <GS5> Blocking Access to Scoring in the Lander and <GS6> Interfering with Scoring at the Lander

This came up during a scrimmage we recently hosted. Our head referee and referee staff has asked us to post this question for clarification.

Situation: *During endgame a blue alliance robot was attempting to latch onto the blue side of the lander that faces towards the audience. Part of the blue robot (the front right wheel) was sticking under the Lander and crossing the mid line of the field into the red Landing Zone. A red robot was also attempting to latch in the red audience facing side of the lander. However, contact with the blue alliance robot that was pulling itself up prevented the red alliance robot from successfully latching.*

Here are the questions:

Question 1: *Would this be a <GS6> Blocking Access to Scoring in the Lander violation on the blue robot, even though the blocking was inadvertent and occurred as part of their own attempts at Latching?*

Question 2: *Does it matter whether the blue robot is extending into the Red Landing Zone under the Lander body enough for a <GS6> infraction to be called if it results in blocking a successful Latch by the opposing alliance?*

Question 3: *In this case, there was another red Lander side available for latching (facing away from the audience). The red robot could have Latched unimpeded on the other Lander face despite the encroachment of the blue robot into the Red Landing*

Zone. Does the fact that Red had an alternate opportunity to Latch impact whether Blue should have been penalized under <GS6>?

Question 4: *Is it a penalty to cross into the opposing alliances Landing Zone during end game if the opposing alliance isn't attempting to score/ latch?*

Thank you for your help in determining the correct action here.

Answer 1: The Robot's actions violate rule <GS6>. It is also a possible rule <GS5> violation depending on the circumstances.

Answer 2: In general, a Latched Robot that does not extend into the opposing Alliance's Landing zone should not be awarded <GS5> and/or <GS6> Penalties. However, a Referee may declare a <GS5> and/or <GS6> violation if the Robot's design or strategy appears to be intended to interfere with or Block an opposing Alliance Robot from Latching onto its Alliance's Lander Support Bracket.

Answer 3: No

Answer 4: No

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Tournament Rules - Answers#1

09-19-2018, 04:03 PM

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Tags: None

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11-01-2018, 01:33 PM

#2 *Originally posted by FTC5501***Subject: Rule <T14> Clarification****Q:** *<T14> Teams will receive a minimum of five minutes (5:00) between consecutive matches.**When does the time for the 5 minutes begin and end? Does it start once the buzzer hits 0 on the match you are playing on when you remove the robot? Does it end when you are asked to place you robot on the field?***A:** The 5 minute minimum is built into the schedule and referred to as cycle time. The 5 minutes begins when a match has ended, and ends at the start of the next match. The 5 minutes does include robot setup on the field, as well as robot placement prior to the start of the next match.[Edit](#)[Quote](#)[Comment](#)[Flag](#)[Like](#)

11-12-2018, 04:30 PM

#3 

Originally posted by **FTC14019**

Subject: Pre-Match Robot Initialization and Placement

Q: *In finals matches, there are often times when teams must place their robot on the field, and there is a long gap between when the fta has the teams initialize. Would it be legal for a team to place their robot on the field in the landing zone, exit the field until the fta allows the team to initialize, and then re enter the field, latch the robot and then hit init?*

A: Drive teams may not delay setting up their robots for a match once they have been directed to move from the on-deck queue to a competition playing field. At this time, drive teams are expected to completely prepare their robots to start a match following the guidelines described in the Game Manual Parts 1 and 2.

Field personnel will make every effort to minimize the length of time robots are set up on the playing field waiting for the match to start. Keep in mind that unexpected delays may occur after drive teams have been called to a playing field due to action on another playing field, playing field repair, robot setup problems, etc. Teams should factor this into their robot design, battery capacity/charge state, etc., the potential for match start delays after robot placement.

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Field Setup - Answers #1

09-19-2018, 04:39 PM

Find answers to questions about Field Setup here.

Tags: None

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11-07-2018, 05:49 PM #2

Originally posted by FTC1001

Subject: Mineral Placement in Crater

Q: *Should field re-setters make sure that the minerals in the crater are in a single layer (no blocks on blocks)?*

A: Per the Field Reset Guide, the requirement is for the minerals to be randomly placed in the crater. Although it is possible for minerals to stack when randomly placed in the crater, they should not exceed 2 minerals high as this would not be a true randomization of elements.

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