



## FRC Q&A

This document was generated on 2014-04-25 22:53:09

### Game - The Arena

#### Q101

**Q.**From the field drawings, it appears that the dynamic vision target is not flush against the polycarbonate alliance station wall between it and the field. However, we can't find a labeled dimension for this distance. Is there a specification for this that will be consistent across official events?

**A.**Please see [Team Update 2014-01-17](#).

### Overview

Not Available

### The ARENA

#### Q436

**Q.**Is there a Kinect station provided with the FMS for teams to use at the field?

**A.**No.

#### Q301

**Q.**Looking for the specifications on the field AP: 1) What protocol(s) are running (802.11g, 802.11a, 802.11n (2.4 GHz), 802.11n (5 GHz)? 2) Is each RF channel 20 MHz, or if channel bonding used how wide is each channel? 3) What data rates are permitted, are any lower data rates turned off?

**A.**1) 802.11a/b/g/n, 2.4GHz and 5GHz are all supported by the Field Access Point. Each team radio on the field connects using 802.11n at 5GHz. 2) Channel width is 40MHz. 3) All data rates are permitted.

#### Q233

**Q.**What are the rgb and hsl levels for the hot goal yellow light?

**A.**That detail is not available.

#### Q158

**Q.**Are the horizontal and vertical positions of the vision targets, in 2.2.4, inclusive of the black strips surrounding the retro-reflective material?

**A.**No.

#### Q157

**Q.**2.2.4 specifies the HOR vision tgt VERT and HOR position (5' 8" and 3-3/4") The VERT vision tgt VERT position is specified (3' 1-1/2" ), but no HOR position is specified. Can VERT and HOR positions of both targets be provided in relation to one another?

**A.**Yes, see *Team Update 2014-01-21*.

#### Q124

**Q.**The goalie zone is bounded by tape on the field. Is the volume directly above this tape part of the goalie zone?

**A.**The GOALIE ZONE is defined as an area, not a volume. Please see [Team Update 2014-01-21](#).

#### Q115

**Q.**Team 1261 was curious about how the ball diameters would be kept constant throughout the events as we have seen a wide range of diameters from the teams near us. Would there be a sizing cylinder? Will the balls be filled with nitrogen to ensure the proper diameter throughout the event?

**A.**Please see [Q72].

## Game - The Game

### Q481

**Q.**Per rule G15 is it legal for a robot to cross the line marking the goalie zone (with an extension above 60") once the match has started as long as part of the robot is still fully in contact with the carpet in the goalie zone?

**A.**Yes.

### Q474

**Q.**Per G27 : Strategies aimed at and/or game play resulting in the ... or inhibition of opponent ROBOTS via actions such as ... or repeated, ... ramming, ... of ROBOTS are not allowed. Does this mean that you cannot push other robots as a defensive strategy to stop their scoring ability?

**A.**Pushing is not repeated ramming.

### Q403

**Q.**G4 C Is the robot considered "... entirely within the white ZONE and between the TRUSS and their GOALS ..." if the wheels are in contact with the carpet in the White Zone but the bumper and/or frame may extend outside the White Zone toward the goal?

**A.**Yes, per G4-C.

### Q401

**Q.**Autonomous Period Near the end of the Autonomous period, if the ball is in the air at the end of the period and goes into the goal will it be scored?

**A.**The BALL must meet the definition of SCORED during AUTO to receive the AUTO score bonus.

### Q366

**Q.**We have noticed that it is possible for a ball to come to rest between the front edge of the high goal and the horizontal pipes above the player stations. In this state, a small part of the ball crosses the goal opening. It is unclear to us whether such a ball would be SCORED as defined by 3.1.4.

**A.**Yes. Please see *Team Update 2014-02-21*.

### Q363

**Q.**During autonomous mode, can software on the driver station use the laptop's camera and send any data regarding what it see to the robot?

**A.**There are no rules prohibiting this.

### Q361

**Q.**Looking forward towards the competition, we've been thinking about our drive team, including who the coach should be. Does this person have to be above 18 or not a student? I feel like that was the case 2 years ago, but have not been able to find it in the rules anywhere.

**A.**Please see the definition of COACH in *Section 6.1: Glossary*.

### Q172

**Q.**Section 6 describes the BALL as spherical; 2.2.9 describes the BALL as approx. 2 ft. in diameter; Sportogo describes their size for the ball as 25 inches or 65 cm (25.59 inches). What is the expected diameter variation in BALL game pieces.

**A.**There is no specification for the expected variation in BALL diameter. BALLS will be inflated per the [2014 BALL Inflation Guide](#).

**Q148**

**Q.**What is considered, or an example of, "impelling" a ball?

**A.**Please see [Team Update 2014-01-17](#).

**Q127**

**Q.**Does the ball have to be all the way in the robots perimeter in the start of autonomous?

**A.**No.

**Q74**

**Q.**May springs have potential energy before and after a match?

**A.**Please see R34-C.

**Q72**

**Q.**At competitions, are balls inflated until they look right or is the pressure measured to ensure same psi in all balls? Also, how often are balls re-inflated?

**A.**BALLS will be inflated per the 2014 BALL Inflation Guide and monitored by FIELD personnel. If your Team believes that a BALL is out of spec, please bring it to the attention of the *FIRST* Technical Advisor (FTA). There is no prescribed number of times a BALL will be re-inflated, but they will likely be deflated at the end of event and re-inflated at the next event. Due to the nature of the BALLS, it is important to design your ROBOT to accommodate variations in the BALL diameter.

**Q44**

**Q.**G38 HUMAN PLAYERS may not pass the BALL to a HUMAN PLAYER in another HUMAN PLAYER AREA (passing the BALL within an ALLIANCE STATION or HUMAN PLAYER AREA is permitted). Can human players receive the ball from a robot and pass it back to an alliance robot?

**A.**There are no Rules prohibiting this.

**Q36**

**Q.**In the rule book, article 3.2.4.1. G15 states that a robot can start in "its GOALIE ZONE". Does "its" refer to the goal zone the team is scoring at, or the goal zone that the opposing alliance teams are scoring at?

**A.**Please see [Q24].

**Q29**

**Q.**If your ALLIANCE misses a CATCH but get the TRUSS SCORE, can they try again for the CATCH?

**A.**Not within that CYCLE.

**Q2**

**Q.**Do you have to start a match with 3 balls during autonomous, or can you start a match with only one or two balls on the court?

**A.**There are no requirements that require ALLIANCES to start the MATCH with three (3) BALLS.

## Game Details

**Q460**

**Q.**What is supposed to happen to a red BALL "scored" [otherwise legally] in a red GOAL by a blue ROBOT? Does it matter if (in the judgement of the referees) the blue ROBOT acted alone, or if a red ROBOT caused the score transitorily through the blue ROBOT? (e.g. by pushing the blue into the LOW GOAL?)

**A.**Per Part A of the definition of SCORED in an ALLIANCE's GOAL in *Section 3.1.4* an ALLIANCE ROBOT must cause their ALLIANCE's BALL to cross and remain completely through the opening of one of their ALLIANCE's GOALS to be considered SCORED. Per the second paragraph of *Section 3.1.2* a BALL which

has gone into a GOAL but not met the criteria to be considered SCORED will be delivered to the ALLIANCE's nearest HUMAN PLAYER. The determination of the cause of a BALL entering a GOAL is dependent on the exact conditions of the MATCH and will be left to the discretion of the Head Referee.

#### Q457

**Q.**Can the head referee deny a correctly signaled DEAD BALL request (for the 1st time in a match)? Meaning, are there any required characteristics on the part of the POSSESSING ROBOT (comm loss, visible damage)? Or can a BALL in an alliance ROBOT be signaled solely as the alliance chooses (once)?

**A.**The only requirement is that the BALL is stuck in or trapped by the ALLIANCE'S ROBOT.

#### Q442

**Q.**There seems to be issues with the timing of the AUTON lighting system and the robots being enabled at the start of the match. Could there be a -2 second "pre-match" where the field AUTON starts and lights a hot goal, then at 0 the robots are enabled. Drivers are already "behind the line".

**A.**The purpose of this forum is to answer questions providing clarity about specific Rules. Please send suggestions to [frcteams@usfirst.org](mailto:frcteams@usfirst.org).

#### Q425

**Q.**Is the alliance allowed to take a new ball from the lit pedestal and give it to the human player WHILE there is already a ball in play?

**A.**Please see G35. If you notice that the PEDESTAL has been lit improperly (i.e. the previous CYCLE has not been completed), please alert the Head Referee at the conclusion of the MATCH.

#### Q424

**Q.**Can a part of the robot extend over the 20in frame perimeter during autonomous? For example, we want to load and shoot the ball for autonomous but in order to do that our grabber must extend over the 20 in frame perimeter.

**A.**Per G4, all ROBOTS must be confined to the STARTING CONFIGURATION prior to the start of the MATCH. Once the MATCH starts the ROBOT'S maximum horizontal dimensions are subject to G24 at all times.

#### Q418

**Q.**Are human players allowed to wear gloves?

**A.**There are no rules that prevent this.

#### Q310

**Q.**The rules state that the High-Goal LEDs are Phillips Color Kinetics iColor Flex LMX LED light strings, but it mentions nothing about lenses. What lens, if any, will be on the LEDs?

**A.**The HIGH GOAL LEDs use the "clear flat" lenses.

#### Q229

**Q.**Can we use communicational devices between drivers and other players on the FIELD?

**A.**Please see T22.

#### Q203

**Q.**All AUTO examples discuss shooting to the high goal. If a robot places a ball in a low goal, are there any points earned during AUTO?

**A.**Please see the first row ("LOW GOAL") of *Table 3-2*.

#### Q174

**Q.**Can a robot get in the way of two opposing robots and block their pass?

**A.**There are no rules explicitly prohibiting this.

#### **Q141**

**Q.**In the Table 3-2: "cumulative Point values" in the row for Mobility there are no points printed under the Auto & Hot column, yet the sentence above says ALLIANCES earn and addition five (5)-point Mobility bonus for each ROBOT that fully crosses (etc...) Shouldn't the table show a 5 for that column?

**A.**The Mobility bonus is not tied to a specific GOAL and therefore is not related to the HOT status of any GOAL. The AUTO & HOT column in *Table 3-2* illustrates the points awarded for scoring in AUTO in a GOAL that is HOT.

#### **Q134**

**Q.**"A CATCH occurs when a BALL SCORED over the TRUSS by a ROBOT'S ALLIANCE partner is POSSESSED by that ROBOT before contacting the carpet, the ROBOT which SCORED the TRUSS, or HUMAN PLAYER." is confusing: Should we read "... is POSSESSED by 1 2 or 3", or "...before contacting 1 2 or 3"?

**A.**Before contacting 1, 2, or 3.

#### **Q133**

**Q.**As of January 15, the text of Section 3.1.4 does NOT match with January 14th update: Manual says: A BALL is considered SCORED ... A. a ROBOT ... opening(s) of one (1) of their ALLIANCE'S GOALS without contact, Update says: ... without intervening human contact,

**A.**Thank you for identifying that error. The Game Manual page has been corrected to properly reflect the text from *Team UPDATE - 2014-01-14*.

#### **Q119**

**Q.**In regards to Q117, do the ejected BALL during AUTO have to be returned into play and scored in order for the first CYCLE to begin or can they be declared "dead"?

**A.**They must be SCORED through a GOAL. Only stuck BALLS may be declared "dead."

#### **Q118**

**Q.**In regards to Q117, is the HUMAN PLAYER allowed to return the ball into the field during AUTO?

**A.**Yes.

#### **Q117**

**Q.**If a balls are ejected from play during AUTO, will these balls be delivered to the closest HUMAN PLAYER during AUTO by event staff?

**A.**Per [Section 3.1.2: MATCH Logistics](#), the BALL(s) will be "delivered to the closest HUMAN PLAYER of that BALL'S ALLIANCE by event staff at the next safe opportunity" regardless of whether this opportunity occurs during AUTO.

#### **Q113**

**Q.**Can a robot possess more than one ball at any given time? (Not referring to an opponent's ball, but rather the multiple balls belonging to one's own alliance that might be on the field during autonomous.)

**A.**There are no rules that prohibit this.

#### **Q106**

**Q.**Just for clarification about the CYCLE, the CYCLE is considered complete when the BALL is SCORED. The CYCLE then starts when the PEDESTAL is lit according to 3.1.4 Figure 3-1. Does the CYCLE start when all BALLS have left play, or when your SCORED BALL is returned to the PEDESTAL?

**A.**A BALL should be staged on the Pedestal at all times. As described in *Section 3.1.4: Scoring*, "each CYCLE begins with an ALLIANCE member retrieving their BALL from their lit PEDESTAL."

**Q99**

**Q.**Is a robot appendage operating in its 20" perimeter zone allowed to extend inside the 1-point goal cube? Either to place a ball to score, or as a goalie defending it?

**A.**Please see G26-1.

**Q97**

**Q.**Which robots/alliances will place their robots on the field first? Given the tactic of placing a goalie in front of an opponent's shooters, The alliance placing last will have an advantage. See Curie division finals in 2009, where both alliances refused to place any of their robots first.

**A.**Please see [Team Update 2014-01-17](#).

**Q94**

**Q.**If one robot scores a ball over the TRUSS, catches it, and then passes it to a second robot (without letting the ball touch either the carpet or a human player), will the second robot score points for CATCHING the ball?

**A.**No. Please see *Team Update 2014-01-14*.

**Q92**

**Q.**For the purpose of assist points, do unique robot-zone pairs have to be achieved in any particular order? For example, a red alliance gets the inbound in white, passes back to blue, then forward to red?

**A.**No.

**Q89**

**Q.**As AUTONOMOUS is an event in itself structured much like a CYCLE, is it considered a CYCLE as well, allowing for the co-operation of teams to receive ASSIST points?

**A.**No. AUTO is not a CYCLE as each CYCLE begins with an ALLIANCE member retrieving their BALL from their lit PEDESTAL.

**Q68**

**Q.**In the Glossary, it says "ALLIANCE: a set of up to four (4) Teams who play AERIAL ASSIST together." We thought that it was only three teams per alliance. Is this a new development, a typo, or something that does not apply at the local level?

**A.**ALLIANCES will typically consist of three (3) TEAMS. Please see [Section 5.4.2 BACKUP TEAMS](#) and [Section 5.6.1 Four ROBOT ALLIANCES](#) for details on when an ALLIANCE may consist of four (4) TEAMS.

**Q66**

**Q.**Exactly when in the match does the first "Hot goal" indicator flip so that it is visible? Before auto, at the beginning of auto, or some short period of time after the start of auto?

**A.**Per [Team Update 2014-01-10](#) both VISION TARGETS will be positioned such that the reflective material faces the FIELD prior to the MATCH. The signal to flip one VISION TARGET to hide the reflective material will be sent at the start of AUTO.

**Q59**

**Q.**During the autonomous period, if our robot moves into our colored zone, are we required to stay there at the end of autonomous for mobility points, or are we allowed to leave the zone after our whole robot has been in our colored zone?

**A.**There is no requirement that the ROBOT remain in the red or blue ZONE to receive the Mobility bonus.

**Q54**

**Q.**[Section 1 Intro; Section 3.1.4 Scoring] If a ball is deflected off of a robot (in a unique zone), does it count as an assist?

**A.**Please see the elaboration in the Blue Box for G12 regarding deflection, POSSESSION, and thus ASSIST assignment.

**Q53**

**Q.**[Section 1 Intro; Section 3.1.4 Scoring] After Autonomous ends, it appears that we still need to "score" any remaining balls on the field. In Teleop, do those balls score goal points, or zero?

**A.**Per the clarification in [Team Update 2014-01-07](#), "For BALLS with which the ALLIANCE started the MATCH, points are awarded when they are SCORED in GOALS."

**Q52**

**Q.**[Section 3.1.4 Scoring] Must an alliance complete a cycle in order to receive Truss and Catch points?

**A.**No. TRUSS and CATCH points are awarded as they happen.

**Q45**

**Q.**During autonomous, do balls have to cross through the goal before the end of the period, or will it be scored as long as it completely leaves the robot before the clock hits zero? Is it like a buzzer beater in basketball?

**A.**We apologize for the confusion. Please see Team Update 2014-01-14. SCORES will be credited once the criteria are met. If all criteria are not met before the AUTO timer reaches zero seconds, the AUTO bonus will not be applied.

**Q37**

**Q.**If a ball goes out of bounds and is returned into play by a human player, do the assist/truss/catch points earned prior to the ball exiting the field still apply, or do they reset?

**A.**They still apply.

**Q16**

**Q.**CATCH and POSSESS - Since Possession can be bumping or herding, and a Catch is possessing before it contacts the floor or a human player, would a catching robot need to HOLD(undefined) or CARRY(undefined) a ball caught over the truss, or only contact (or be hit by) the ball?

**A.**To SCORE a CATCH, an ALLIANCE must meet the criteria outlined in [Section 3.1.4: Scoring](#).

**Q15**

**Q.**What counts as a "catch" or "possession"? What are the criteria for these definitions; would a controlled bounce count (for example, a trampoline apparatus)?

**A.**CATCH is defined in [Section 3.1.4: Scoring](#). POSSESSION is defined in G12. Both definitions can also be found in the [Glossary](#).

**Q10**

**Q.**Will CATCH points be awarded if the same ROBOT that scored over the TRUSS is the first to POSSESS the BALL? In other words, can a ROBOT CATCH its own toss over the TRUSS and earn points?

**A.**No.

**Q9**

**Q.**If a alliance misses a shot into the high goal does that alliance lose the assist's it has achieved?

**A.**No.

**Q3**

**Q.**Can balls not scored in autonomous be used in a cycle (points awarded for assists and truss) during teleop? Rules describe a cycle as beginning with a human player.

**A.**No, each CYCLE begins with an ALLIANCE member retrieving their BALL from their lit PEDESTAL.

## Game Rules

**Q510**

**Q.**To clarify, this means that a pin will therefore only be waved off when both of these conditions are met? At regionals, there are referees waving off a pin when robots have backed off from the pin, which would not comply with G29. The game manual currently does not state the ref's wave off process.

**A.**This question was answered in [Q507]. If you have a question on a Referee's action at an event, please direct your question to the Head Referee per T13.

#### **Q509**

**Q.**If Robot A T-bones Robot B such that movement is hampered (middle of field not counted a pinning), and then moves B in such a way that it contacts the playing field wall (pinning count initiated), and then the pushing action moves the Robots away from the wall. Will the pin count be kept per G29?

**A.**We cannot give specific answers to hypothetical situations, as there are factors occurring throughout the MATCH that affect the answer. Generally, if the ROBOT is able to drive away, it is not being pinned per G29.

#### **Q507**

**Q.**When does a referee wave off a pin count? Is it when the robots have backed off 6ft and waited for 3sec (as per G29)? And if the referee waves off a count, will it always restart at 1?

**A.**1) Per G29, the pinning ROBOT must back up six (6) ft then wait for three (3) seconds. 2) Yes.

#### **Q505**

**Q.**Regarding G16 and G17: During Autonomous, is it legal for the driver to use a beam of light emitted by a handheld flashlight to signal to a sensor built into the Operator Console to control the robot given that the flashlight is not in physical "contact" with the Operator Console?

**A.**No, powered signaling devices are not allowed per T22.

#### **Q501**

**Q.**Regarding G17: During AUTO, is it legal for the driver to use an optical transmitter not physically connected to the Operator Console to signal the robot via the Operator Console or directly?

**A.**Please see T22.

#### **Q500**

**Q.**Is it possible to receive G12, G27, G28, and/or G29 penalties in autonomous? Particularly, is it possible to incur violations without without violating G15?

**A.**Yes, there are no exceptions exempting these rules from applying during the AUTO period. Yes, there are no requirements that G15 be violated in order to violate another rule.

#### **Q499**

**Q.**Which, if any, sub-types of possession require an intent to possess (as determined by the judgement of the referees) on the part of the possessing robot? On the part of the alliance? The other alliance?

**A.**"Herding" (as distinguished from "bulldozing"), "launching" (through the determination of "desired location or direction"), and "trapping" (provided its perceived as an attempt to shield the BALL) all require some assessment of intent.

#### **Q498**

**Q.**Is G12d: "overt isolation [against a FIELD element or Robot] [one or more BALLS] [in an attempt to shield them] or holding one or more BALLS against a FIELD element or ROBOT in an attempt to shield them", or some other clause parsing?

**A.**The proper parsing is: "overt isolation" (in an attempt to shield them) "or holding one or more BALLS against a FIELD element or ROBOT in an attempt to shield them."

#### **Q493**

**Q.**Rule G.4 states that a robot in violation of frame perimeter may be disabled unless fix is quick. Can a robot be turned on to bring mechanical arm back into frame perimeter? Please clarify "quick fix"? Thank you.



**A.**Tethering to the ROBOT would not constitute a "quick remedy".

**Q492**

**Q.**Rule G.4 states that out of bound robot may be disabled, unless fix is quick. How quick? Please clarify. If fix is very quick (move a piece of tubing off bumper) can ref disable anyway? If fix happens more than once in competition, can ref disable rather than allow fix?

**A.**There is no formal definition of "quick remedy". In general, moving a piece of the ROBOT by hand would constitute a quick remedy while an action requiring tools or tethering would not.

**Q489**

**Q.**pertaining to G12, If the opposition has possession of the ball and the robot and ball are clearly headed for a scoring position, is it possible to intentionally bump them? Are we allowed to move them out of a potential scoring position? is any defensive action possible?

**A.**Defense has no bearing on G12 violations.

**Q488**

**Q.**Is the zone tape considered "carpet" for the purposes of G4? If so, white tape only, or also the red/blue?

**A.**Tape is not carpet. G4 applies only to ROBOT contact with the carpet.

**Q487**

**Q.**Does G9 prohibit non-drive members team from carrying the robot on-field for safety reasons? (e.g. drive team is injured/disabled and unable to carry the robot safely) Members would leave before the match begins without a G6 delay (G9 violation moot), but carriers wouldn't have drive team buttons

**A.**Yes.

**Q484**

**Q.**Thanks. So does repeated contact by the defensive robot inside their opponents frame perimeter qualify as "initiating deliberate contact"? If not, would contact hard enough to lift one of the opponent robot wheels off the ground qualify as "initiating deliberate contact"? Looking for a clear example

**A.**If the Referee concludes that contact inside a ROBOT's FRAME PERIMETER was initiated by an opponent ROBOT, yes.

**Q480**

**Q.**Suppose there is 1 HUMAN PLAYER in each of the HUMAN PLAYER AREAS on either side of the field... Can these HUMAN PLAYERS pass to each other via tossing the ball over the field, as long as the HUMAN PLAYERS do not extend into the Safety Zone or outside the HUMAN PLAYER AREA?

**A.**Please see G38.

**Q473**

**Q.**During AUTO, is it legal for the driver to generate a sound (e.g., strike a metal pipe to produce a tone) that is detected by the operator console and sends a command to the robot? We believe this is consistent with Q431, but would appreciate confirmation that the rules do not prohibit this.

**A.**There are no rules that prohibit this.

**Q469**

**Q.**If a robot is playing defense with an extension outside its frame perimeter and is repeatedly contacting opponents inside their frame perimeter, would G28 penalties apply even though no serious damage occurs? Would it matter if the hits with the extension were so hard they tilted the offence robot?

**A.**Initiating deliberate contact with an opponent ROBOT inside the vertical extension of its FRAME PERIMETER is a violation of G28.

**Q466**

**Q.**#1. Does TU 3/18 lower the threshold for G12 (a no-call in Week 1 could be a call now, for the identical

situation), or raise the threshold for receiving a G12 tech foul (a tech foul in Week 1 could be a foul now)? #2. Does an immediately consequential, then extended G12 get (1) or (2) tech fouls?

**A.** Only the violation and blue box sections of the rule were changed, not the rule itself, so the threshold for the violation has not changed. However, if a Team violates the rule in a way that the Referee determines is both 'unintentional' and 'inconsequential', only a FOUL will be assessed, rather than a TECHNICAL FOUL as in prior weeks. If the violation is both 'consequential' and 'extended', two TECHNICAL FOULS will be assessed, as these are independent conditions in some circumstances.

#### **Q465**

**Q.** Does A452 mean that scoring one's ball in the low goal is always G12d "overt isolation" and therefore (for a robot entirely in 1 zone) an assist-eligible POSSESSION? Is it possible for a Red robot entirely in the Red zone to not receive a POSSESSION for scoring the Red ball in the Red low goal?

**A.** Rare, but possible if the Referee determines that the ROBOT didn't meet the criteria for POSSESSING the BALL.

#### **Q458**

**Q.** Referring to G28.. If my robot has an element outside the frame perimeter and another robot initiates contact resulting in my robot's element extending inside the other robot's frame perimeter, will my robot be penalized?

**A.** Hypothetical scenarios will not be addressed in this forum. Generally, a ROBOT is penalized per G28 if the Referee perceives the ROBOT as having initiated deliberate or damaging contact with an opponent ROBOT on or inside the opponent's vertical extension of the FRAME PERIMETER.

#### **Q456**

**Q.** Is it a foul to push a robot into a corner back up a couple of inches so the cornered robot can still move and then park so that the cornered robot cannot exit the corner?

**A.** Per G29, after a pin is initiated that ROBOT will be considered pinned until the ROBOTS have separated by at least six (6) ft.

#### **Q453**

**Q.** At the start of a match can a BALL be placed so that it is touching robot A, not touching robot B, and touching a BALL held by robot B? Per G5 this seems legal unless the BALL is considered part of the ROBOT.

**A.** Yes.

#### **Q452**

**Q.** Is it possible for G12d to apply to an offensive robot (robot with its own ball)? i.e. Can "trapping" lead to an ASSIST-eligible POSSESSION [provided 3.1.4 and other rules are otherwise followed], as offensive play wouldn't be "an attempt to shield [the ball]"?

**A.** Yes.

#### **Q450**

**Q.** Can a ball be declared dead (per 3.1.2) if it is stuck in a field corner but underneath, rather than "in", a robot that is now incapacitated by the ball being beneath it? Does the robot's color vis-à-vis the ball matter?

**A.** See *Team Update 2014-03-18*

#### **Q449**

**Q.** Is the HUMAN PLAYER allowed to place the BALL on the GUARDRAIL or in the 20" space between the HUMAN PLAYER BARRIER and the GUARDRAIL before moving the BALL into play?

**A.** There are no Rules prohibiting this.

#### **Q441**

**Q.** G28 "Initiating deliberate or damaging contact" & the box says "A ROBOT .... MAY be penalized". This has been interpreted by referees as "ANY" contact inside the frame perimeter with an extended element,

damaging or not. Please clarify "Deliberate" and clarify if the intent of this rule is "ANY".

**A.** There is no FRC-specific definition of deliberate, so the colloquial definition applies, i.e. intentional. G28 does not apply to any contact inside the FRAMER PERIMETER, but to the initiation of deliberate or damaging contact. For example, accidental contact on or inside the FRAME PERIMETER that does not cause damage is not a violation of G28.

#### Q440

**Q.** Can the human player wear gloves?

**A.** Please see [Q418].

#### Q437

**Q.** Which is the correct parsing of G36? "...must first contact..." 1) a) "a ROBOT" b) "the carpet on its DRIVERS' end of the FIELD..." or 2) a) "a ROBOT [on its DRIVERS' end of the FIELD]" b) "the carpet on its DRIVERS' end of the FIELD..."

**A.** #2.

#### Q431

**Q.** Regarding G16 and G17: During AUTO, is it legal for the driver to "hold" and use cards with barcodes as "control devices" to signal the robot via the camera built into the Operator Console given that the cards are not in physical "contact" with the Operator Console?

**A.** There are no rules prohibiting this.

#### Q430

**Q.** In the team update dated 2014-03-04 regarding G-40, The term "Adjacent" is used to describe the robot's position. Would a robot that is directly in front of the human player, yet not extending beyond the field boundary, fall into the intended definition of "adjacent"?

**A.** If the ROBOT is not extending outside the GUARDRAIL, the condition of part 1 of G40 is not met and the TEAM member may extend body parts up to the GUARDRAIL per part 2.

#### Q426

**Q.** A few questions: 1) Is the alliance coach allowed to hold up the dead ball card? 2) If a ball is not inside a disabled robot, but the robot prevents the ball from being accessed, can a dead ball be assessed?

**A.** 1) Yes. 2) No. *Section 3.1.2: MATCH Logistics* only applies to BALLS stuck in a ROBOT.

#### Q422

**Q.** G12 states an ALLIANCE may not possess an opponent's ball and that "herding" (repeated pushing or bumping) is possession. If an ALLIANCE intentionally bumps an opponent's ball twice in rapid succession is it considered "repeated" and thus "herding"? If he pushes an opponent's ball several feet without losing contact is it "herding". G12 also defines "bulldozing" as "inadvertently coming in contact with balls..." and as not possession. If the contact is advertent, is it bulldozing?

**A.** 1) Please see [Q210]. 2) Please see [Q210]. 3) No. Intentional contact may be categorized as either "deflection" or POSSESSION.

#### Q417

**Q.** Can the drivers un-score the opponents ball by hitting it back out onto the field through the goals?

**A.** No. *Team Update 2014-03-04* will clarify.

#### Q415

**Q.** If one robot is carrying a ball, can it create a trap with a second alliance robot while maintaining the carry?

**A.** Generally, yes, but the specific MATCH situation will determine the Referee's decision.

#### Q414

**Q.**How long do two robots need to maintain a trap before it is considered possession?

**A.**There is no explicit time limit in judging POSSESSION.

**Q413**

**Q.**Can two robots trap a ball that is not in contact with the carpet?

**A.**Yes.

**Q410**

**Q.**Per Q55, the Kinect is allowed as part of our driver station during autonomous. Please clarify: May a Driver, remaining compliant with G16 & G17, use the Kinect that is part of the driver station to control the Robot during Auto?

**A.**Yes.

**Q407**

**Q.**For rule G23, does the extension device have to always travel vertically within the 6" cylinder? In other words.....Is it a foul if a vertical arm is deployed such that it swings-into-position, and stays within the requirement for the remainder of the match?

**A.**Please see [Q80].

**Q398**

**Q.**If a robot is preloaded with a ball in autonomous and misses its shot so that the ball is on the field when teleoperated starts. Can the alliance get assist points on that ball as if it was a regular cycle? Or is it only possible to get the points for scoring it in a goal and nothing else?

**A.**Please see [Q76].

**Q397**

**Q.**Can a Human Player make a catch on a truss pass from 1 alliance partner and then re-enter the ball to another alliance partner in a different Zone for an additional assist ? Will you get a truss and catch score with an additional assist for that cycle ?

**A.**1)HUMAN PLAYER actions have no effect, positive or negative, on the accumulation on ASSISTS. ASSISTS are determined solely by ROBOT POSSESSION(S) (and the ZONES in which the POSSESSION(S) occur). 2)No, per the definition of CATCH in *Section 3.1.4*, the BALL must be POSSESSED by an ALLIANCE partner before contacting "the carpet, the ROBOT which SCORED the TRUSS, or HUMAN PLAYER". If the BALL meets the criteria to be considered SCORED over the TRUSS as described in *Section 3.1.4* the ALLIANCE will receive TRUSS points for that CYCLE.

**Q387**

**Q.**Can we score from our opponent's goalie zone - as in, our robot would drive right up to/in our opponent's goalie zone and score into the high goal?

**A.**There are no rules prohibiting this.

**Q380**

**Q.**May COACHES momentarily touch a BALL that has been scored by the opposing ALLIANCE to prevent it from hitting the DRIVERS?

**A.**Per G34, "Inadvertent or inconsequential contact will not be penalized."

**Q379**

**Q.**If an ALLIANCE starts a MATCH with three ROBOTS in the white ZONE, can it start that match with fewer than 3 BALLS on the FIELD?

**A.**Yes.

**Q374**

**Q.**Is a ball introduced prior to Autonomous as a preload worth any points if scored during the

Teleoperated portion of the match?

**A.**Please see [Q53].

### **Q371**

**Q.**Is the 6 inch cylinder for extensions always perpendicular to the ground, or are they perpendicular to the robot? If a robot has an appendage extended, and the robot is rocked by another robot, does the cylinder rock with the robot or remain stationary with the ground?

**A.**Please see [Q260] and [Q348].

### **Q368**

**Q.**During the autonomous period, does your robot (lets say, team red) score on your team's goal (red) or the opposing team's goal (blue)?

**A.**Please see the 4th paragraph of *Section 3.1.4* (particularly condition A) and *Figure 3-2*.

### **Q358**

**Q.**Are you allowed to start the match with with elastic tubing pre-tensioned? (such as a catapult arm winched back and ready to fire?).

**A.**Please see [Q311].

### **Q348**

**Q.**If a defensive robot is tipped by an exterior force, and its vertical extension (4.1 General Robot Design R3) temporarily extends out of the vertical 6in cylinder, will the team be penalized?

**A.**Yes, provided the exterior force is not determined to be a violation of G14.

### **Q334**

**Q.**Clarification is needed regarding G22 & G23. Specifically, do all four wheels need to be in contact with the goal zone only in order to extend beyond 5ft during teleop?

**A.**G22 & G23 require only contact with the carpet, neither rule specifies what part, or how many parts, of the ROBOT must be in contact with the carpet.

### **Q331**

**Q.**What happens if we contact a goalie bot from an opposing alliance during auto mode...does G15 still apply? And for clarification, if the goalie touches us rather than us touching the goalie bot, does the opposing alliance or our alliance receive the penalty?

**A.**If the opponent ROBOT is still in the GOALIE ZONE, G15 has not been violated by either ALLIANCE. The contact only results in a violation of G15 if the opponent ROBOT is not in contact with its GOALIE ZONE.

### **Q322**

**Q.**We would like clarification on rule G12's definition of "Herding", in coordination with the definition of CATCH as stated in the Glossary. If a ball bounces multiple times inside the robot while it makes an attempt to catch, and the ball leaves the robot after, would it be considered possession?

**A.**We cannot comment absolutely on hypothetical situations, as there are factors that come into play outside this forum. Generally, "herding" occurs when the BALL is also in contact with the ground. "Carrying" or "holding" occur when the BALL is fully supported by the ROBOT. Even if the BALL is moving relative to the ROBOT, it may be "carrying" or "holding" the BALL.

### **Q321**

**Q.**Based on update 1/24 regarding G4 where Robot's position is 'such that the only contact between the ROBOT and the carpet is their White Zone...', is the ball's position in auto governed by its contact point when in contact with the carpet? We're curious about consistent positioning from event to event

**A.**The BALL'S position at the start of the MATCH is defined in G5, which does not require the BALL to be in contact with the carpet. If a ROBOT starts in the GOALIE ZONE or does not report to the MATCH, and its BALL is still placed on the FIELD by the ALLIANCE, the BALL may not break the plane of either fiducial structures referenced in [Q232] and G5.

**Q279**

**Q.**Can you score multiple truss points in one scoring cycle?

**A.**No, per the third paragraph of *Section 3.1.4*, points are awarded once per CYCLE for BALLS SCORED by ROBOTS over the TRUSS.

**Q270**

**Q.**In reference to rule G10, regarding game ball "damage". What constitutes punishable damage to a game ball specifically? (i.e. tearing the outer fabric, popping the ball, black scuffs on the ball, etc.)

**A.**Please see the Blue Box below G10 and Q114.

**Q259**

**Q.**When placing robots on the field before the start of a match, can two robots be placed in such a way that they are touching the same ball at the same time?

**A.**There are no rules prohibiting multiple ROBOTS from contacting the same BALL before the MATCH begins. However, per G5, each ROBOT may only contact one (1) BALL.

**Q244**

**Q.**As per rule G27 If a blocking robot is unintentionally damaged while blocking a shot will the alliance that shot the ball be penalised for damaging the opponent robot?

**A.**We cannot comment absolutely on hypothetical MATCH situations. Generally, this would not be considered a "strategy aimed at the destruction or inhibition of ROBOTS", and thus not a violation of G27.

**Q238**

**Q.**In Rule G5, is the bumper included in the "ROBOT" in the sentence "For ROBOTS starting in the white ZONE, the TEAM may preload one (1) of their ALLIANCE's BALLS such that the BALL is touching their ROBOT."? e.g. is it allowed to have the ball only touching the bumper, entirely out of the frame?

**A.**Yes.

**Q234**

**Q.**My two human players begin the game in the alliance station and remain there per G39 leaving one human player area vacant?

**A.**There are no rules that require all HUMAN PLAYER AREAS be occupied.

**Q232**

**Q.**In reference to G5, does the definition of staged mean that the entirety of the ball must be contained in an infinitely extended plane bound by the white zone and the truss, or that the point of contact between the ball and the carpet must be within the white zone and the truss?

**A.**There is no formal definition to "staged." The BALL must be placed such that it is between the two fiducial structures, thus intersecting neither.

**Q230**

**Q.**Can we put anything such as retro-reflective materials on our alliance's robot?

**A.**While not explicitly prohibited, please see the Blue Box on R8.

**Q224**

**Q.**Team Update 2014-01-14, Section 5.1, established the order of placing robots in GOALIE and WHITE ZONES. Does it violate the rules or gracious professionalism to alter the autonomous code at the Driver's Station after the robots have been placed but before the match starts?

**A.**No.

**Q223**

**Q.**Is the GOALIE ZONE defined by the edge of the tape closest to the Driver's Station (33.25") or the edge of the tape closest to the center of the playing field (35.25"). A standard wide kitbot needs the larger measurement to have it's wheels fit entirely in the GOALIE ZONE.

**A.**The tape marks the boundary of the GOALIE ZONE and is not part of the GOALIE ZONE, however ROBOT contact with the tape is not prohibited in G4.

#### **Q222**

**Q.**What is the distinction between "herding" and multiple instances of "deflection"? Specifically, what is the minimum amount of time that must pass between each instance of contact between the ROBOT and the BALL for it to be considered multiple instances of "deflection" instead of "herding"?

**A.**There is no specified minimum amount of time between "herding" and "deflection," and the distinction between the two will be made by a Referee during the MATCH.

#### **Q205**

**Q.**G40 blue box & human player barrier. No one should cross the field's guardrails four vertical planes extending upward. May the human player's hands, arms and possibly head, momentarily cross into the 1ft. 8in. horizontal human player barrier zone without penalty while receiving or releasing a ball?

**A.**Yes, as this is not part of the FIELD.

#### **Q189**

**Q.**What would be considered an attempt to stop the flow of the match/Blockade? Would it be all 3 robots of an alliance lining up at the middle and pinning the other three alliance robots?

**A.**We cannot comment absolutely on hypothetical MATCH situations, as the context of the MATCH is important. Generally, ALLIANCE ROBOTS successfully trapping the entire opponent ALLIANCE into one area of the FIELD is considered "stopping the flow of the MATCH" and an example of a "blockade". Pinning is not explicitly a blockade and governed by G29.

#### **Q186**

**Q.**Scoring question on 3.1.4 c: Does that mean we would not be able to push a ball into the goal? We are interpreting this to mean the ball may not be in contact with a robot once it rolls to the opening in the wall of the driver's station, or does it mean the ball must freely bounce into the goal.

**A.**This means that the BALL is not considered SCORED until the ROBOT is no longer in contact with it.

#### **Q181**

**Q.**Re Q170: A red robot is stationary in front of the low goal. An blue robot continually pushes the blue ball against the red robot, attempting to score in the low goal. Is this a violation of G12, G29 (transitory through the ball after 5 seconds), or another rule?

**A.**We cannot comment absolutely on hypothetical scenarios. Generally, a ROBOT pinning a BALL against a ROBOT of the opposing ALLIANCE will not be considered a violation of G12. Per G29, pinning is transitory through other objects; there is no exception for BALLS or GOALS.

#### **Q177**

**Q.**A robot is in the goalie zone, with a blocking mechanism that obeys G23. An opposing robot shoots for the high goal, and the ball bounces off the blocking mechanism. Is this a violation of G12 if: The mechanism, using software, deflects the ball in a desired direction?

**A.**Generally, if the MECHANISM is in motion relative to the ROBOT at the time of impact, it is "launching" and thus POSSESSION. If the MECHANISM is not in motion relative to the ROBOT, it is considered "deflecting" and not POSSESSION.

#### **Q176**

**Q.**A robot is in the goalie zone, with a blocking mechanism that obeys G23. An opposing robot shoots for the high goal, and the ball bounces off the blocking mechanism. Is this a violation of G12 if: The mechanism continues to move throughout the impact, but does not actively direct the ball?

**A.**Generally, if the mechanism is in motion relative to the ROBOT at the time of impact, it is "launching" and thus POSSESSION.

**Q175**

**Q.**A robot is in the goalie zone, with a blocking mechanism that obeys G23. An opposing robot shoots for the high goal, and the ball bounces off the blocking mechanism. Is this a violation of G12 if: The mechanism stops [relative to the robot] momentarily before impact?

**A.**Generally, if the MECHANISM is not in motion relative to the ROBOT at the time of impact, it is "deflecting" and thus not POSSESSION.

**Q170**

**Q.**Regarding possession of opposing alliance's ball: If a robot is attempting to score a 1-pt goal, if an appendage of a defending robot either a) holds the ball from dropping into the top of the goal or b) causes the ball to be "pinned" as it's pushed in the front goal, would it be illegal possession?

**A.**Yes.

**Q163**

**Q.**We would like clarification on the definition of "Blockade" as defined in rule G25. The term implies that an alliance may not play 2-robot defense by having them attempt to stop enemy alliance robots from crossing the field. Is this correct?

**A.**Per G25, "blockading" the FIELD is done so in an attempt to stop the flow of the MATCH. Two ROBOTS playing defense on a single ROBOT is not, generally, "blockading".

**Q160**

**Q.**The 1/17 change on POSSESSING seems to say that a bot may intentionally hit the opposing team's ball (using only bot's floor motion) a single time to change its trajectory, as this is not POSSESSION. Further, it could do it again at a later time as long as it is not 'herding' True?

**A.**Generally, yes.

**Q159**

**Q.**If a blue bot deliberately (as determined by a ref) causes a blue ball to be POSSESSED by a red bot, will G12 apply or will G14 apply? If G14, and the POSSESSION is via carrying, can red POSSESS the ball for the remainder of the match without penalty? Consider if Red is not be able to free it.

**A.**If it is determined to be a "strategy aimed solely at forcing the opposing ALLIANCE to violate a rule", G14 would be called. In this case, there would be no additional penalty for the Red ALLIANCE continuing to POSSESS the BALL.

**Q149**

**Q.**Under 3.1.2, it stated that "each ALLIANCE is allowed to indicate one (1) BALL as 'dead' per MATCH." What if two robots are disabled during the autonomous period, each with a ball stuck in their possession? Will the remaining robot in the alliance be prevented from continuing the match?

**A.**In this situation, an ALLIANCE would need to work on freeing one of the trapped BALLS.

**Q146**

**Q.**G21 states "ROBOTS may not extend outside the FIELD." In cases where a red robot has a 20" or under extension outside their frame perimeter and they are pushed into the side wall by a blue opponent robot to where their extension extends outside the field. Is the penalty on red(G21) or blue(G14)?

**A.**If, in the judgement of a Referee, this was a strategy aimed solely at forcing an ALLIANCE to violate a Rule, it would be a violation of G14. If it is judged to be standard ROBOT-to-ROBOT interaction, it would be a violation of G21.

**Q145**

**Q.**G12 as written defines POSSESSION as the "and" of "carrying", "herding", "launching", and "trapping". This seems to make POSSESSION impossible. It seems the "and" at the end of item (C) in the list ("launching") should really be an "or". Can you please clarify?

**A.**Thank you for identifying that error. Please see *Team Update 2014-01-21*.



**Q142**

**Q.**How many times can you earn truss points per scoring cycle? Also can a robot earn catch points by shooting a ball in the air and have the same robot catching it? If these actions are not allowed can you point out in the manual where it is specified?

**A.**1) Please see *Section 3.1.4: Scoring*, paragraph 3. 2) Please see *Section 3.1.4: Scoring*, 2nd paragraph after Figure 3-3. 3) See answers to 1 and 2.

**Q136**

**Q.**G28 -If a ROBOT is in possession of a ball, and the method of possession places the ball outside the bumper perimeter, but above the bumpers, and said ball contacts an opposing ROBOT (inside its frame perimeter), is that considered contact inside the frame perimeter? (and thus a potential penalty)

**A.**G28 refers to contact by the ROBOT, not the BALL.

**Q126**

**Q.**If during the autonomous period one of the robots on your alliance stalls and is disabled before it is able to get rid of its ball, won't it prevent the alliance's pedestal from turning on? In that case won't the alliance be unable to proceed in the rest of the match?

**A.**Please see *Section 3.1.2: MATCH Logistics* as updated in *Team Update 2014-01-10*.

**Q123**

**Q.**For a red alliance robot starting in the white zone, with a ball under its control, can it attempt to score a goal before moving into the red zone for the mobility points? Also, can the robot move into the red zone for mobility points, then shoot after?

**A.**Please see [Q23].

**Q122**

**Q.**[G15] If a robot starts in the white zone on the side of the truss closest to its operator, can the robot cross beyond the truss to enter into its scoring zone (red alliance's robot moving into the red zone)? I believe that this rule was intended to prevent a red robot from entering the blue zone.

**A.**Per G4-C a ROBOT may not start in the described location.

**Q120**

**Q.**Can a robot move back and forth on the field for the purpose of scoring assist and truss (throw and catch points) with an alliance robot, or must every "advance" be made for the purpose of scoring in the opponent's goal?

**A.**Our apologies, we do not understand your question. Please revise and resubmit.

**Q114**

**Q.**Rule G10 prohibits team from routinely "marking" the game pieces. Would contacting the ball with spinning wheels leaving a small streak of rubber on the ball be considered a violation of this rule, even if there is no permanent damage to the game piece or tear to the fabric?

**A.**Per the Blue Box on G10, occasional marking of the BALL is not a violation of G10, but routine marking of the BALL is.

**Q108**

**Q.**Can a human player be part of the 2nd assist?

**A.**Please refer to *Section 3.1.4: Scoring* for details on earning ASSISTS. Specifically, that ASSISTS require POSSESSION, which requires a ROBOT.

**Q107**

**Q.**Can robot "a" pass the ball to robot "b", drive to the next zone, and receive the ball from robot "b" for an assist bonus?

**A.**Such a scenario is completely dependent on other events in the CYCLE. Please review *Section 3.1.4: Scoring* for full details on earning ASSISTS.

**Q104**

**Q.**What penalties, if any, will be assessed if a robot unintentionally “catches” an opponent’s ball, while attempting to defend an opponent? What if this robot makes a good faith effort to immediately release the opponent’s ball when caught? Reference to possession:

**A.**We cannot comment on hypothetical scenarios and rely on the Volunteer Referees to make calls for actual events. If the action is inferred to be a deflection, it is not POSSESSION per the Blue Box in G12. If the action is inferred to be POSSESSION it will be penalized per G12.

**Q103**

**Q.**If a robot purposely moves to hit an opposing robot's ball (whether the ball is moving or not) and impels the ball in a direction, is this considered "launching" or "bulldozing"? Is this action considered possession?

**A.**Please see Q71.

**Q98**

**Q.**Regarding Section 3.1.4, balls scoring criterion: does the requirement that the ball go "into the opposing ALLIANCE STATION" mean that a ball landing behind the border does not count as a scored ball?

**A.**We apologize for the confusion about SCORED. Please see the updated definition in [Team Update 2014-01-14](#).

**Q83**

**Q.**can an opponent robot enter the goalie (thus interfering with the goalie) zone? may our alliance switch robots as goalie during a match?

**A.**Yes. Yes.

**Q82**

**Q.**may a robot block the front or top or side of the low goal without a time limit? would not be using the body of the robot but rather an extension.

**A.**There are no rules explicitly prohibiting this.

**Q78**

**Q.**Can the human players in the side player areas try to score goals? i.e. a robot passes the ball to the human player who then throws the ball into the high/low goal.

**A.**No, per [Section 3.1.4: SCORING](#), the BALL must pass through the GOAL "without intervening human contact".

**Q77**

**Q.**Please clarify role of human players. Unclear as to what a human player can do. In the diagram, there are two alliance boxes for human players on either side of the field. Do they stop their ball from leaving the field to avoid the penalty. Please give us some examples for clarification purposes

**A.**Please see the second paragraph of [Section 3.1.2 MATCH Logistics](#) and the Blue Box below G11.

**Q76**

**Q.**Do all the autonomous balls have to be scored before the first cycle begins ?

**A.**Yes.

**Q75**

**Q.**In the second sentence of the third paragraph of section 3.1.4, is the capitalized term "GOAL" intending to refer to "BALLS SCORED in GOALS" or "BALLS SCORED [over TRUSS or through CATCH points]"?

**A.**This refers to BALLS SCORED in GOALS.

**Q71**

**Q.**If the BUMPERS of our ROBOT intentionally contact a rolling opponent BALL, causing the BALL to divert from its intended direction, but not repeatedly pushing or bumping it, will this action be considered POSSESSING the opponent BALL?

**A.**We cannot comment on hypothetical scenarios and rely on the Volunteer Referees to make calls for actual events. If the action is inferred to be a deflection, it is not POSSESSION per the Blue Box in G12. If the action is inferred to be a launch, it will be considered POSSESSION per G12.

**Q70**

**Q.**Is more than one robot allowed to be in their goalie zone? The opposing alliance's goalie zone?

**A.**Yes. Yes.

**Q69**

**Q.**Can robots enter the opposing alliance's goalie zone?

**A.**There are no Rules prohibiting this.

**Q65**

**Q.**G4-D entirely within their GOALIE ZONE. Building a standard kitbot in a wide configuration will cause part of the robot to be outside the GOALIE ZONE when the bumpers are attached. Is it necessary to build a narrower robot to ensure the bumpers and robot fit entirely within the GOALIE ZONE?

**A.**Per G4-C, ROBOTS starting in their GOALIE ZONE may only be in contact with the carpet in the GOALIE ZONE. ~~must be contained entirely within the GOALIE ZONE.~~

**Q64**

**Q.**I'm looking for a little clarification regarding possession. Specifically, if a robot in zone 1 pushes a game piece at a robot in zone 2 (same alliance) and it bounces off that robot and continues into zone 3 where robot 3 then scores it, would the second robot's momentary contact count as an assist? I'm trying to consider what an alliance might want to do if we have a dead robot on our alliance.

**A.**The purpose of this forum is to answer specific questions about specific Rules. We cannot comment absolutely on hypothetical situations. Please see the definition of "deflecting" in the Blue Box below G12.

**Q63**

**Q.**can we get a penalty if the opponent ball accidentally lands in our robot? is it a time period to avoid penalty?

**A.**Yes, if the ROBOT meets the criteria of POSSESSION per G12. No.

**Q61**

**Q.**We want to put the Kinect on the robot. I understand use of the cameras is fine, but whether we can use the infrared sensor is more ambiguous. Can we use it? The FIRST manual states that devices which deliberately attempt to interfere with other robots are not allowed. This is not meant to do that.

**A.**We cannot declare an item explicitly legal or illegal on these forums, but there are no Rules that explicitly prohibit using the Kinect on the ROBOT.

**Q56**

**Q.**G29 What is the definition of pin? Is a robot pinned when it is being pushed i.e. moving but not where it wants to go? Is a robot pinned only when it is immobilized i.e. not moving?

**A.**In the absence of a formal FRC definition, a general definition of term is implied. Pin means to hold fast in a spot or position. If a ROBOT can move, even if not in its desired direction, it is not considered pinned.

**Q55**

**Q.**Are we allowed to use the kinect as part of our driver station during autonomous mode this year?

**A.**There are no rules prohibiting this.

**Q51**

**Q.**[G5] At the start of Autonomous, 'bots in the white zone "may" be in contact with a ball. Does that mean that there is an option not to? If so, may the ball be placed elsewhere in the white zone? Or is it removed from the field? (Not clear from the rules.)

**A.**G5 requires that BALLS preloaded be touching the ROBOT. The "may" allows TEAMS to decide that they do not want to preload a BALL, in which case the BALL is removed from the FIELD. The only exception is for BALLS associated with ROBOTS that are not present for the MATCH or begin the MATCH in the GOALIE ZONE.

**Q50**

**Q.**If the ball goes out of play, let's say a team shoots and the ball goes over the 10 point target and out of play, does it get put back in play or does the next ball get inbounded?

**A.**Per [Section 3.1.2](#), the BALL will be returned to the closest HUMAN PLAYER of that BALL's ALLIANCE.

**Q49**

**Q.**Can the human player touch the other alliance's ball if it is going out?

**A.**Please see [Q12].

**Q48**

**Q.**Defined a match is 2minutes and 30 seconds Long. G5: for ROBOTS starting in their GOALIE ZONE the TEAM may decide..., or removed from the FIELD for the MATCH. Does that mean that the team will be cycling one less ball if it is removed for the MATCH, ie only two balls to cycle?

**A.**BALLS that start the MATCH are do not contribute to CYCLES. All ALLIANCES, regardless of how many BALLS with which they started the MATCH, will execute CYCLES with one (1) BALL.

**Q47**

**Q.**Define "precedence" in G4. If red TEAM is attempting to position a ROBOT in the GOALIE ZONE directly in front of blue TEAM's ROBOT, which TEAM gets the "final say?" In essence, which team has the advantage of positioning the robot last, the ones with a shooting robot or the ones with a goalie?

**A.**The ROBOT in the white ZONE may position last.

**Q40**

**Q.**If a robot is not able to move during the autonomous time of the game, are their alliance team members allowed to push them from the white zone into the red/blue zone during the autonomous part in order for both robots to receive the bonus 5 points?

**A.**There are no Rules prohibiting this, however caution and coordination with that ROBOT'S TEAM are strongly recommended to prevent inadvertent damage.

**Q39**

**Q.**If a ball loaded robot becomes disabled during the autonomous period, and their alliance partners are not able to retrieve the ball from the disabled robot at any point in the game, is there any way in which the alliance can score the rest of the match when all the autonomous balls are gone?

**A.**Please see [Team Update 2014-01-10](#).

**Q38**

**Q.**If a robot becomes disabled during the match, can an alliance member try to get the ball off of the disabled robot as long as they are not trying to intentionally or most likely cause damage to the disabled robot?

**A.**There are no Rules prohibiting this, however caution and coordination with that ROBOT'S TEAM are strongly recommended to prevent inadvertent damage.

**Q31**

**Q.**In 3.1.4, a CATCH occurs when a ROBOT POSSESSES a BALL before it touches the carpet. Under G12,

POSSESSION includes "launching" or "impelling BALLS to a desired location or direction." If the ROBOT contacts the BALL, while it is midair, under what conditions would the contact qualify as a CATCH?

**A.**The contact must meet the criteria for POSSESSION as defined in G12.

#### Q28

**Q.**Will a fourth alliance ball be placed on the unlighted pedestal pre-match so that in the event all three pre-loaded balls are scored during autonomous, the first cycle can begin immediately? Otherwise, the time to the start of the first cycle is dependent upon field crew efficiency.

**A.**The intent is to always have a BALL staged on the PEDESTAL, but it's eligibility for play is indicated by the PEDESTAL lighting.

#### Q25

**Q.**Does rule G12 prohibit intentionally knocking an opposing alliance ball out of their control or reach as they're passing from robot to robot or at any time the opposing alliance does not have control of their ball?

**A.**[G12] prohibits an ALLIANCE from POSSESSING the opposing ALLIANCE'S BALL. If the ALLIANCE is not POSSESSING the opposing ALLIANCE'S BALL, it is not a violation of G12.

#### Q24

**Q.**GOALIE ZONES are not very well defined. Does "their GOALIE ZONE" mean a blue bot starts in the GOALIE ZONE in the BLUE ZONE, or the RED ZONE? I feel this should read: "entirely within the OPPOSING ALLIANCES GOALIE ZONE." Which then puts a blue bot in the red GOALIE ZONE.

**A.**Per the definition of GOALIE ZONE in [Section 6: The Glossary](#), "their GOALIE ZONE" means that a Blue ROBOT would start in the Blue GOALIE ZONE, which is in front of the Red GOALS.

#### Q23

**Q.**If a robot begins the match in the white zone, is it restricted to that zone until after shooting its ball (unless it does not have a ball). Or can a robot autonomously move into the red or blue zone before shooting?

**A.**There is no Rule prohibiting this.

#### Q22

**Q.**Rule G24 states that the robot may not extend more than 20" outside its perimeter. Is this 20" only on a single side or can it extend 20" on multiple sides at the same time?

**A.**Please see [Q11].

#### Q21

**Q.**We would like clarification on Rule G3.1.4 C. Can the robot place the ball in a goal, or can it only toss/kick it into the goal?

**A.**There are no prescribed ways the BALL must be delivered in to the GOALS. Per [Section 3.1.4 C](#), the BALL will not be considered SCORED until it is no longer in contact with any ROBOT from that ALLIANCE.

#### Q14

**Q.**During the autonomous period, are teams allowed to possess two balls at the same time? Say if one alliance partner is in the goalie zone and their ball remains in white zone (compliant with G5) and we start with a ball in possession, are we allowed to possess/herd that second ball after the start?

**A.**There are no Rules prohibiting this. However, per G5 the ROBOT may only be preloaded with (i.e. touching) one (1) BALL prior to the MATCH starting.

#### Q13

**Q.**If you attempt to score a ball and miss will you lose the truss, catch, and assist points? Or can you attempt to score again?

**A.**No. Yes.

**Q12**

**Q.**If a ball is going out of bounds, can the human player hit the ball back into play mid air?

**A.**Yes for their ALLIANCE'S BALL. No for the opposing ALLIANCE'S BALL per G32.

**Q8**

**Q.**If an alliance loses control of their ball, does their assist count go back to 0?

**A.**No.

**Game - The Robot****Q472**

**Q.**Upon qualifying for Championships, a team has to have the robot in the bag inside the crate by the following Tuesday with FEDEX. Regarding extra parts for the robot that are bagged and tagged, 1. If we want to bag and tag extra parts so that they do count toward our the 45 lbs, can they be put

**A.**Any parts bagged following the proper procedure do not count against the 45 lb. limit of R18.

**Q409**

**Q.**In regards to Update 2014-02-21, R21-D have now been updated to allow for seems. Does our bumpers right now stand illegal if the bumpers were made to be as follows: Pool Noodle - 1 Layer of Fabric - 1 Layer of Fabric - 1 Layer of Fabric.

**A.**Please see *Team Update 2014-02-25*.

**Q404**

**Q.**The update does not seem to cover the question. Reversible bumpers require 3 layers of cloth. Does the update mean that two layers sewn together equal one layer of cloth?

**A.**Please see *Team Update 2014-02-25*.

**Q395**

**Q.**Regarding Section 5.4.3: We withheld a significant mechanism on our robot. Without this bolts-and-two-wires mechanism, our robot is far less demo-able. Is it "working on" if we unbag, bolt the withheld parts into existing holes to demo, unbolt, and bag a Clearly Completely Un-Worked-On Robot?

**A.**Yes, this would be considered working on the ROBOT.

**Q378**

**Q.**Would cotton batting between the rugged cloth material and pool noodles be considered legal on a bumper to keep the shape of the bumper smooth?

**A.**This would not meet the specifications of R21 for bumper construction.

**Q377**

**Q.**In Update 2014-02-11, R21-D states two layers of cloth is permitted if needed to accommodate R27. If bumper covers are reversible or have covers to accommodate for R27, there may be 3 layers or more of rugged cloth covering the pool noodles at a time. Would this be legal?

**A.**Please see *Team Update 2014-02-21*.

**Q347**

**Q.**How is the power of an off the shelf servo defined. Is the speed in revolutions per second or radians per second?

**A.**The purpose of this forum is to answer specific questions about specific rules. For technical assistance, including assistance with wattage calculations, please visit the [FIRST Forums](#).

**Q330**

**Q.**We assume that using tape or other similar material to secure the pool noodles together is also illegal. If this assumption is in fact true, we would like to know the reasoning behind not allowing this, if the alternative

is sagging bumpers, which can result in a disable per G20.

**A.**Please see [Team Update 2014-02-11](#).

### Q290

**Q.**We are looking for guidance regarding 5.4.3 of the Competition Manual Sec 5.4.3. Terms like brief and many are open to various interpretations. DC FRC teams have been asked to participate along with Jr.FLL, FLL and FTC teams at the George Washington University STEMosphere on March 8, 2014. I need to know if 6 - 8 hours of static display would be considered "brief". If not, how many hours would qualify as brief? Can you please provide guidance as soon as possible on the amount of time the robot can be on display only? 5.4.3 Robot Displays New this year! To assist teams with their promotional and community relations activities, robots may be unbagged and operated briefly after "Stop Build Day" for display purposes only. • The intent of this option is to allow teams to briefly show their robot to their community, sponsors, or potential sponsors after "Stop Build Day". o Unbagging a robot and putting it on display for many hours at a time would not be considered a 'brief' display • The Robot Lock-Up Form must be used to track the unbagging and rebagging of the robot during this period. In the 'Explanation' column of the form, enter 'Robot Display' • No activity that could be considered 'work on' or 'practice with' the robot is allowed • Brief displays of robot functions – driving, for example - are allowed, but not to the extent that they could be considered practice o A good way to avoid turning a robot display period in to a practice session is to have non-drive team members operate the robot, and only for as short a time as necessary to show the robot's capabilities

**A.***Administrative Manual Section 5.4.3* is intended to support the team's ability to cooperate with their sponsors and share the message of *FIRST* while making sure an advantage is not given to one team over another through added robot access time. A good way to fulfill this intent is to use a prior year robot for this sort of display if possible. If this year's robot must be used then the mentor and team must make sure no additional work or practice is achieved during a minimum bag open time for static display only (as a guideline, no more than 4 hours) that is required for the event.

### Q247

**Q.**Would cloth/gaffers tape be legal since it would be considered fabric? Many teams have patched holes in there bumpers using gaffers tape since it is a cloth tape.

**A.**Please see [Team Update 2014-02-07](#).

### Q219

**Q.**Is it legal for teams to use tape, shrink wrap, or other soft material to secure the pool noodles to the wood underneath the bumper fabric? In previous years teams have had issues with pool noodles that would sag below the wood.

**A.**~~No.~~ Yes. Please see [Team Update 2014-02-11](#).

### Q210

**Q.**A robot bumps a ball with a non-moving mechanism (e.g. bumpers). They do not contact the ball again for X seconds. For what values of X will this second contact not count as repeated contact as defined for herding? Do other factors come into play when evaluating robot behavior and herding?

**A.**We cannot comment absolutely on hypothetical situations as many other MATCH factors come into play when evaluating "herding."

### Q209

**Q.**Rule R79: "compressed air on the ROBOT must be provided by one and only one compressor." 1) We can only use one compressor at a time, but can swap out compressors (e.g. if the one we are using starts to overheat). 2) We can only use one compressor for an entire event. Which reading is correct?

**A.**Situation 1, but also consider T8 and T10.

### Q180

**Q.**We found a white plastic air tank with clippard air power on the side and 150 max psi. Can't find any information on this tank to see if it was one of the ones recalled a few years ago for possibility of exploding and replaced with the metal tanks

**A.**The purpose of this forum is to answer specific questions about the 2014 Game Manual. Please, either rephrase the question to be a question about a Rule or visit the [FIRST Forums](#) for technical assistance.

**Q165**

**Q.**Can the cross brace extrusion for the base be flipped upside down

**A.**The purpose of this forum is to answer specific questions about the 2014 Game Manual. Either rephrase the question to be a question about a Rule or visit the [FIRST Forums](#) for technical assistance.

**Q153**

**Q.**In the game section G24 See figure 3-6 Question is...Is this referring to the robot in static still position where nothing extends beyond 20 in or does this mean during competition, the pick up arms cannot extend beyond 20 in? (Which is 17 in with bumper added)

**A.**G24 applies regardless of whether a ROBOT is static or in motion. Please remember, per G4-B, the ROBOT must be confined to its STARTING CONFIGURATION prior to the start of the MATCH.

**Q135**

**Q.**R27 Jan.14 update addition applies only to markings on bumpers or any "marking installed on the ROBOT" ?

**A.**The marking restriction in R27 applies specifically to the BUMPERS.

**Q132**

**Q.**May the robot's frame extend below the bumper?

**A.**There are no rules that prohibit the ROBOT frame from extending below the bottom of the BUMPER ZONE.

**Q19**

**Q.**Are bumpers required on a section of the robot, if that section, or area of the frame, is used for ball pickup?

**A.**All ROBOTS must comply with [Section 4.6: BUMPER Rules](#).

**Q18**

**Q.**Is the BALL counted as part of the allowed 20" extension beyond the frame perimeter? or the ball allowed to extend beyond 20"?

**A.**The BALL is not part of the ROBOT.

## General ROBOT Design

**Q399**

**Q.**For the weight limit, must we weigh all modules together even though they aren't on the robot at the same time or do we measure the robot several time with each module?

**A.**Please see R5.

**Q364**

**Q.**Pertaining to R8, our team was going to make plywood sidings for the robot (for internal protection). Given the large structure of our robot it may obscure other teams vision of their robot. Would this be allowed if unintentional, or must we resort to transparent alternatives?

**A.**We cannot declare a ROBOT design legal or illegal based solely on details provided in this forum, as there are other factors which impact the decision. Generally, opaque sides to a ROBOT that were not designed or used to obstruct or limit the vision of any DRIVERS and/or COACHES and/or interfere with their ability to safely control their ROBOT are not in violation of R8. At each event, the Lead ROBOT Inspector (LRI) has final authority on the legality of any COMPONENT, MECHANISM, or ROBOT. In the case of R8, the LRI may seek the input of the Head Referee and/or FTA to help make the determination.

**Q359**

**Q.**Pertaining to 4.1 General Robot Design R3, the robot cannot exceed 60 inches in height. When a ball is loaded onto the robot, can the ball exceed 60 inches in height if no part of the robot does?

**A.**There are no rules prohibiting this.

**Q349**



**Q.**Our robot it is too big to transport in a car, can we bag the "arm" in a separated bag and tag?

**A.**Please see *Team Update 2014-02-14*.

#### Q340

**Q.**Does a 1/4" thick piece of aluminum added (bolted/riveted/welded) to the exterior of the frame add that thickness to the perimeter of the robot? Is this legal?

**A.**If that material is added in the BUMPER ZONE, the material would define the new FRAME PERIMETER per R2.

#### Q338

**Q.**Our bumper is 39X5 in. A kicker device interferes with the bumper, can we cut a 6x1 in rectangle out of our bumper to allow room for kicker while still attaching full bumper? If not, do you have any recommendations.

**A.**BUMPER design must meet all of the Rules described in *Section 4.6*. Please refer to Figure 4-8.

#### Q326

**Q.**Do panels of corrugated plastic that mount on the on exterior of the metal frame of our ROBOT and that extend down into the BUMPER ZONE count towards the FRAME PERIMETER of the ROBOT?

**A.**The purpose of this forum is to answer specific questions about specific rules, not to perform pre-inspection or review designs for legality. See the Blue Box below R2 for the procedure used to determine the FRAME PERIMETER.

#### Q314

**Q.**[Extending Q313] In Rule R3, part B regarding the ROBOT may not extend 20in beyond the FRAME PARAMETER. It is my interpretation that the ROBOT may have items extending 20in beyond the FRAME PARAMETER during the STARTING CONFIGURATION. Would my interpretation be correct?

**A.**No. Please see R4.

#### Q311

**Q.**In the starting configuration. Can there be tension on springs used to hold the ball launcher in place before the automous mode begins?


**A.**Please see R34-C.

#### Q277

**Q.**In R2 of General Robot Design it states that the Frame Perimeter must be contained within the bumper zone. Is this meant to constrict the perimeter of the robot or constrict the frame from being below two inches? If the latter is true then is it measured from the top or the bottom of the frame?

**A.**Per R2 the FRAME PERIMETER is determined within the BUMPER ZONE. Per R4, no part of the ROBOT may extend outside the vertical projection of the FRAME PERIMETER when in STARTING CONFIGURATION. There are no rules prohibiting placing parts of the ROBOT below the BUMPER ZONE within the FRAME PERIMETER.

#### Q274

**Q.**On an octagonal robot, does the 20" rule apply at the point the appendage exits the robot frame, or at the furthest point of the frame on that side? (pictured below) 

**A.**Per *Figure 4-2*, the dimension requirement of R3-B forms a ROBOT footprint constructed by measuring 20 in. perpendicularly outward from every point on the FRAME PERIMETER.

#### Q272

**Q.**Can we paint a piece of Lexan and attach it to the frame of the robot?

**A.**There are no rules explicitly prohibiting this.

#### Q271

**Q.**The kit frame has a gap of ~4" on all 4 corners between the outer and inner plate. This will result in no support on one side of each corner behind the bumpers if left as designed by AndyMark. Should teams bridge this gap to make it a true corner?

**A.**When assembled according to the instructions the AM14U KOP chassis has a 5/8 in. flange extending inward from the outside plate inside the BUMPER ZONE which may be used to satisfy R26.

#### **Q265**

**Q.**how many cameras are we allowed to have on the robot?

**A.**There are no explicit rules regarding the number of cameras allowed on the ROBOT. However, please remember R58-B.

#### **Q260**

**Q.**Per 4.1.3 R3D, "Any extension above 60 in. may not exceed 6 in. a diameter vertical cylinder". Is this relative to the plane of the base of the robot or the floor? If robot is slightly tipped, with vertical cylinder > than 6 in. relative to the floor but not the base of the robot, is it a violation?

**A.**There is no FRC specific definition of "vertical," thus the colloquial definition applies: being in a position or direction perpendicular to the plane of the horizon. For the purposes of FRC, the floor may be considered an approximate representation of the horizon.

#### **Q255**

**Q.**We are using 3 Denso window motors. One of them is legal but the other 2 even though they LOOK COMPLETELY the same on the exterior are not in the manual and MAY be different on the inside, we have 262100-3040 which is ONLY leftmotor, while the 2, 262100-4332 motors are ONLY rightmotor, can we use them?

**A.**Per R29, up to two (2) window motors may be used if they: A) match the legal part numbers in Table 4-1, B) came from FIRST Choice, or C) were obtained through the Automotive Recyclers Association.

#### **Q252**

**Q.**Per rule 4.1 R3 C, "the robot height may not exceed 60 in." Does this mean a robot that fits within maximum starting configuration may receive penalties if it slightly tips over, making it taller than 60 inches, or does the 60 inch rule only apply relative to the plane of the base of the robot?

**A.**A ROBOT that is not in contact with the carpet in its GOALIE ZONE and is taller than 5 ft will receive a penalty per G22.

#### **Q231**

**Q.**If our wheels extend past our current frame by .08", do they count as the new frame perimeter and thus increase our overall perimeter size?

**A.**Yes, the Frame Perimeter is determined by the string method highlighted in the blue box in R2.

#### **Q216**

**Q.**We're making interchangeable components. i.e. a shooter, a blocker, a catcher, or a thrower. This way we can adjust our robot to best accommodate our allies for each round. Provided the sum weight of all components does not exceed 120 lbs, and all components pass inspection, is this legal?

**A.**Yes. Please see R5 and note that all additional MECHANISMS are considered part of the ROBOT, thus total cumulative weight may not exceed 120 lbs.

#### **Q213**

**Q.**In the drive train box we receive a item called the cross brace extrusion. is it legal to have the brace flipped upside down?

**A.**There are no Rules prohibiting this.

#### **Q185**

**Q.**In the act of catching, will a penalty be assessed if a flexible stay is bent beyond the 20" limit due to the force of the gamepiece?

A.Yes.

#### Q182

Q.4.1.3 R3 Our question is concerning the 20 in beyond the frame perimeter. Is the 20 in only in one direction? Or, could you extend 10" one and direction and 5" another direction?

A.Please see [Q11].

#### Q168

Q.how many air storage tanks are we able to have?

A.Please see [Q60].

#### Q167

Q.Does the 20" perimeter for the robot include arms that are capable of extending? We want to build an arm that would be stationary and then when the competition starts it would extend an over 20".

A.Please see *Figure 3-6*.

#### Q156

Q.What is 'software' officially defined as?

A.There is no formal definition of software. Generally speaking, software refers to the non-tangible elements of a computing system.

#### Q152

Q.Can a robot which meets the 112 inch perimeter at the start of the match, expand to a larger size after start? The plan would be to expand up to 40 inches wider and/or longer.

A.The FRAME PERIMETER of the ROBOT may not grow, or be articulated (R2). However, per R3-B, a ROBOT may expand up to 20 in. outside its FRAME PERIMETER.

#### Q128

Q.The rules state that solenoid valves must be no larger than 1/8" npt. Does the same apply to air pilot valves?

A.No. However, air piloted valves which are not Solenoid valves are not listed in R77 and therefore not a legal pneumatic component.

#### Q125

Q.Rule 4.1.2 R2 states: "Minor protrusions no greater than 1/4 in. such as bolt heads, fastener ends, and rivets are not considered part of the FRAME PERIMETER." Would an eighth inch plate attached to the frame so that it is partially outside of the frame perimeter be a violation?

A.Yes. This plate would be considered part of the FRAME PERIMETER per R2.

#### Q116

Q.In g23 it talks about breaking the 6" cylinder as a penalty. If we have an arm that deflects when struck by a ball, but then returns after contact it that a penalty?

A.Yes.

#### Q112

Q.R19 Says that a minimum of 8 inches of bumper must be placed on each side. If a side is shorter than 8 inches the entire side must be protected. I read this to mean that a 3" side on a robot is permitted so long as its entirely covered with a bumper. Am I correct in that thinking?

A.Yes.

#### Q111

Q.Ate electro magnets allowed on the robot?

**A.**See [Q79]

**Q109**

**Q.**In last years game wheeled shooters had to have a safety cover to totally enclose them to pass inspection at the two regionals we participated in. In designing this years robot, wheeled shooters could be a possibility to use (example Team 2383's post on chief delphi today). Is there a rule for this?

**A.**There are no explicit requirements for shielding. Generally, ROBOTS are required to remain safe per R8. Per *Section 5.5.2*, at each event, the Lead ROBOT Inspector (LRI) has final authority on the legality of any COMPONENT, MECHANISM, or ROBOT.

**Q105**

**Q.**We would like Clarification on the "Starting Configuration" referenced in R4. If a robot is starting inside its respective Goalie Zone, will it be able to start the match with its 6-inch diameter extension already extended, or will it have to wait for autonomous to begin to put the mechanism up?

**A.**The definition of STARTING CONFIGURATION does not specify a height constraint.

**Q84**

**Q.**Under G24 the reader is referred to Figure 2-6. Is this a typo? Should this have been Figure 3-6 since the actual figure follows Figure 3-5? (the label of that figure is also labelled 2-6, which I am suggesting should be labelled Figure 3-6)

**A.**The link in G24 and figure numbering appear correct as far as we can tell. If you are still seeing an issue please send an e-mail with an attached screenshot to [frcteams@usfirst.org](mailto:frcteams@usfirst.org).

**Q80**

**Q.**In Rule 4.1 R3D, Can the appendage rotate up or does it have to extend straight up to meet the 6" diameter requirement.

**A.**ROBOTS must be in compliance with G23 at all times during the MATCH. There is no explicit restriction on the motion of the extension(s) provided they remain within a 6 in. diameter vertical cylinder.

**Q67**

**Q.**Does the game piece count in the frame perimeter restrictions according to R3? I.e. if the game piece extends outside of the limits outlined in R3?

**A.**Please see [Q18].

**Q43**

**Q.**Does the robot have to be within the frame perimeter at start?

**A.**Please see G4-B and the definition of STARTING CONFIGURATION.

**Q42**

**Q.**Does the location of the robot when shooting during autonomous mode impact the value of the score?

**A.**No.

**Q41**

**Q.**Can the robot extend beyond the frame perimeter with more then one appendage? If so can more then one extend at the same time? Also can they extend on more then one side of the robot?

**A.**Please see [Q1] and [Q11].

**Q35**

**Q.**In rule 4.1.3 R3, it is specified that 'Size constraints may be met with hardware or software.' What size constraints are there on software?

**A.**As indicated in the Blue Box, software may be used to constrain the ROBOT to meet the requirements of R3.

**Q30**

**Q.**Is there a maximum length or width for the robot's frame, so long as its perimeter meets the requirements?

**A.**No.

**Q11**

**Q.**How many directions can you extend 20 in. horizontally at one time?

**A.**Infinite.

**Q1**

**Q.**Can you have more than one appendage of 20 inches each?

**A.**There are no Rules prohibiting this.

## Safety & Damage Prevention

**Q461**

**Q.**If a specific event or regional requires a safety interlock device for compliance with R8 when transporting and/or keeping the robot in the pit, can this device be "additional" to the robot in such a way that it can be removed and stored on the robot cart, then re-installed at the end of a match?

**A.**If a Team's ROBOT design requires an additional device used to safely transport the ROBOT in an stored energy state (per R8), there is no requirement that this device be part of the ROBOT.

**Q332**

**Q.**can a robot have stored energy in the form of surgical tubing before the match starts

**A.**Please see R34-C.

**Q188**

**Q.**Is MDF (Medium Density Fiberboard) a "solid, robust wood" as per R21? In other words, is MDF a legal material for bumper construction?

**A.**No.

**Q164**

**Q.**Under the 4.2 Safety and Damage Prevention R8 reads that no "exposed" lasers other than class 1 may be used. Does "exposed" refer to aiming lasers OR to laser used for the functions within the robot itself solely?

**A.**Exposed refers to any laser not fully enclosed within a COTS assembly (such as a ring laser gyro).

**Q100**

**Q.**Would a conforming robot element that may cause significant damage to other robots or the field be allowed? For example, assuming a 25" square chassis and using the full 20" extension on both sides, a 65" long horizontal element spinning on axis at high speed

**A.**Per R08, "ROBOT parts shall not...cause an unsafe condition"

## Budget Constraints

**Q433**

**Q.**Correction. Does the cost of past KOP and the cost of current KOP items have to be included in the total cost of the robot?

**A.**Per *Section 6.1: Glossary*, the KOP is the collection of items listed on any Kit of Parts Checklist, has been distributed via FIRST® Choice, or obtained via a Product Donation Voucher (PDV). Thus, "past KOP" items are KOP items and may be assigned a cost of \$0 on the BOM per R10-B.

**Q375**

**Q.**Per rules R10-R12 does this mean everything on the AndyMark FIRST Choice pages does not have to

be list on the BOM? Is anything listed on FIRST choice technically a KOP object? Also let's say i use 5 FESTO valves, do I list any of them or does the inspectors assume they were all bought with credit

**A.1)** All items must be listed on the BOM, per T9. KOP items can be listed at \$0, per R10 and R12. 2) Yes.

### Q373

**Q.**Per R12, all items used on the robot (excluding KOP items) must be included in a BoM. Would scrap metal, machined by students, need to be included?

**A.**Yes.

### Q372

**Q.**Per R12, KOP items used do not have to be included in the BoM. Would that extend to KOP items received in previous seasons that we are using on this years robot?

**A.**R10 and R12 exempt KOP items from cost calculations only. Please see T9. Please see the definition of Kit of Parts in *Section 6: The Glossary*.

### Q267

**Q.**How do you count the cost of 3D printed parts on the robot? Also how would you count it if the printer came from FIRST Choice?

**A.**If the item is made with material that is not a KOP item, then it must be accounted for per R12 (in particular, Example 6). If the item is made with material that is a KOP item (i.e. sourced from FIRST Choice), then R12 does not apply and, while the item must still be on the BOM, no cost need be applied.

### Q139

**Q.**Are 8 inch Mecanum wheels legal? AndyMark quotes the price as \$459 for four wheels, does that count as a single component over \$400?

**A.**The modules may be assembled in more than a single functional configuration, therefore they are not in violation in R11.

## Fabrication Schedule

### Q454

**Q.**For the purpose of R13, If the leads have been cut or stripped to the final length for use on a previous ROBOT, may the motors be reused on the 2014 ROBOT? Also, if the leads of the motor have had connectors installed on them during a previous season, may they be reused on the 2014 ROBOT?

**A.**Some additional work must have been done to the part (e.g. trimming leads, adding connectors) after the 2014 Kickoff for the part to be legal per R13.

### Q445

**Q.**For the purpose of R18, is a COTS motor with trimmed or stripped wires considered a fabricated item due to its "altered" and/or "cut" state? What effect does the installation of connectors have on this? Will teams need to purchase brand new motors to exempt them from the 45lbs limit?

**A.**If the leads have been cut or stripped to the final length for use on the ROBOT they would meet the definition of a FABRICATED ITEM. Installation of connectors would make the resulting assembly a FABRICATED ITEM.

### Q419

**Q.**Robot Transportation 5-6 re: Robot Access Period For District Event Teams, the Robot Access Period is 6 hours during the 7 days preceding the two day event. Is this in addition to the 4-5 hours that teams have access to their robot on Day Zero?

**A.**Yes. The Robot Access Period does not count time that the Event is open to all Teams.

### Q396

**Q.**Some clarification is needed about rules R15 & R18. Between Feb 19 and our first competition, can we continue to build/develop using our 45 pounds of "static set of FABRICATED ITEMS" as long as we don't interface with our bagged robot? Additionally, what does the word "static" mean in this case?

A.1) Yes. 2) In the context of R18, "static" means "fixed" such that the set of parts withheld per R18 doesn't change between now and the end of the first Event (i.e. you can't withhold an arm assembly now and then swap it out for an intake assembly during a Robot Access Period). The set may be different for each Event (at the end of your first Event you could withhold the intake assembly and bag the arm assembly), including any associated Robot Access Periods.

### Q383

Q.Can teams Bag and Tag using two bags due to transportation convenience? It is difficult to fit the entire robot into a trailer or car for transporting to competition.

A.Please see [Team Update 2014-02-14](#).

### Q293

Q.What is encompassed by the terms "repair" and "upgrade" of the ROBOT under Game Rule R-18? Is it acceptable to continue development of the electrical system, software and the team's unique mechanical assemblies and designs after Bag and Tag? If so, how do we resolve or prevent conflicts with the Stop Work Day rules (Admin Manual Paragraphs 5.1 through 5.4)? Example scenarios affected by this question are: 1st Scenario: Team XYZ reaches the Stop Build Date with an incomplete design. They completely remove the electrical assembly and a gripper mechanism weighing less than 30 pounds, bag and tag the remainder of the robot. Between the Stop Work Date and the regional competition, work continues on the software, gripper mechanism using a second robot (from 2013) as the test platform and the 2014 electrical board. After un-bagging the robot at the regional competition, the electrical assembly (containing the completed software) is placed back into the robot along with the gripper mechanism. 2nd Scenario: Team ABC builds two identical robots during the build season. On Stop Work Day, one of the two robots is bagged and tagged. The second robot is used to continue refining the software, shooter and gripper mechanisms. Activities include driving the robot, testing the gripper and shooter against the targets used during the build period. At the regional competition the results of this work are added to the first robot in the form of the refined software and changes to the two mechanisms (parts totaling less than 30 pounds). Please provide a ruling on the legality of these activities and rationale for the ruling. Guidance useful for variations of these scenarios would be very helpful.

A.Generally, *repair* means to "restore to a good or sound condition after decay or damage" and *upgrade* means "to improve or enhance the quality or value." R15 applies to only to the ROBOT entered in to the competition per R1.

### Q269

Q.When bag and tag comes, can an unfinished part of the robot not be included in the bag so that it can be finished?

A.Please see R15-E and R18.

### Q266

Q.On the day of bag and tag, we are required to bag our "robot", does that include the bumpers as well?

A.Please see R14 and R18.

### Q32

Q.Do KoP items need to be included in the BoM? Robot rules 4.3.1 R10 says they do not. Tournament rules 5.5.2.4 T9 says they do. Which is correct?

A.R10-B exempts Kit of Parts items from cost accounting, not from being listed on the Bill of Materials.

## Material Utilization

### Q502

Q.If Team A's mechanism was brought as a spare part (i.e. intake) as part of Team A's withholding and gives it to Team B for the rest of the competition (for match advantage or if Team B's mechanism broke during the competition), would this be legal? And would this count towards Team B's withholding?

A.There are no rules that prohibit this. Items brought in by Team A are counted in Team A's 45 lb allowance per R18.

### Q497

**Q.**In regards to R18's 45lb withholding limit; If Team A brings a mechanism for Team B to use on Team B's robot (I.E. an Intake mechanism). Would this be legal as long as the robot have been reinspected? Would this mechanism be counted towards Team A's withholding limit or Team B's withholding limit?

**A.**1) Yes, so long as all other applicable ROBOT Rules are met. 2) Team B.

#### **Q494**

**Q.**Q447 had two questions but one answer. It asked "...are we allowed to bring it to competition for use as a display in our pit? Will this count towards the 45-pound holdback limit? Answer: "No, per R1." We would like to bring a similar bot to the arena lobby (not pit) and would like clarification.

**A.**A Team's ROBOT (or Robot) on display at an event is considered entered in to the FRC as it is likely considered by Judges for award evaluation. For this reason, a 2nd ROBOT (or Robot) is not permitted unless an explicit exception is granted from FIRST.

#### **Q447**

**Q.**If we have a non-competition promotional robot made of KOP parts and unique structural pieces which can only drive, are we allowed to bring it to competition for use as a display in our pit? Will this count towards the 45-pound holdback limit?

**A.**No, per R1.

#### **Q443**

**Q.**Regarding Q146: We have a battery cart made up of old robot parts. Will this count against our withholding allowance?

**A.**Per R18, if the Team would like access to the items for use on their ROBOT during the event, then yes.

#### **Q416**

**Q.**Can we bring an old robot to the competition for the purposes of using it to supplement our Chairman's Award presentation and not have the weight count against our team's 45 lb withholding allowance?

**A.**These items would count towards the 45 lb limit in R18.

#### **Q408**

**Q.**Can I use 'sugru' to cover and insulate the terminals on our battery and motors. It is listed as an electrical insulator by the manufacturer. see <http://sugru.com/>

**A.**There are no rules prohibiting this.

#### **Q405**

**Q.**We bought a couple pneumatic control valve from Princess Auto. We notice after installation that although the exhaust ports are 1/8 " NPT, the pressure ports are 1/4" NPT. Can we still use them or do all ports have to be less than 1/8"

**A.**R77-C refers to any/all ports on the solenoid valves.

#### **Q370**

**Q.**For the purpose of R18, if a team would like to bring a fully assembled drivetrain and separate the cRIO, motors, and other heavy parts, would those parts (separated from the drivetrain) be considered FABRICATED ITEMS and thus subject to the 45 pound limit, or are they COTS items?

**A.**The answer depends entirely if the items meet the definition of COTS or FABRICATED items.

#### **Q336**

**Q.**WHERE DO YOU THE BOM TEMPLT?

**A.**Please see [Team Update 2014-02-07](#).

#### **Q257**

**Q.**Do VEXpro 3 CIM Ball shifter gearboxes that our team purchased and assembled count toward the 30



pound limit for FABRICATED ITEMS as detailed by R18?

**A.** Yes, a MECHANISM which has been assembled from a kit from a vendor is considered a FABRICATED ITEM.

#### **Q161**

**Q.** Help using electromagnets for locking purposes?

**A.** The purpose of this forum is to answer specific questions about the 2014 Game Manual. Please either rephrase the question to be a question about a Rule or visit the [FIRST Forums](#) for technical assistance.

#### **Q102**

**Q.** Can we reuse raw materials from last year's robot? For example, our team has a piece of plastic that we can reuse from our last year's robot. It was drilled and manufactured for a different use than this year.

**A.** R13 does not allow fabricated parts from previous robots to be used on 2014 robots.

#### **Q96**

**Q.** Is it legal to use fiberglass leaf springs (for example, to launch the game ball)? If so, are there any special requirements for coating the material?

**A.** There are no Rules explicitly prohibiting this. The Lead Robot Inspector at each event has final authority on any ROBOT'S compliance with R08.

#### **Q91**

**Q.** Are there any restrictions on the use of bow-like COTS parts?

**A.** Yes, including safety, cost, weight, etc.

#### **Q73**

**Q.** Are there any regulations over use of tension spring?

**A.** There are no explicit regulations, assuming all other ROBOT Rules (e.g. Safety) are met.

### **BUMPER Rules**

#### **Q491**

**Q.** Our bumpers have folding fabric cover: up=blue, down=red. Folding corners are difficult to sew, so we used flat black. When folded, bumper is all red or all blue, w/black corners. We passed inspection in Duluth and MPLS, played in Duluth. In MPLS, Field Ref said we must cover corners. Please clarify

**A.** Per R27, the BUMPERS must be red or blue to match the ALLIANCE color, not black.

#### **Q462**

**Q.** Does a G20 disable also occur when another robot rips open (failure of the mandated fabric/attachment), rather than rips off (failure of team's chosen mounting system) another's bumper? If so, does R21-d allow multiple layers of fabric for durability reasons, rather than just for satisfying R27?

**A.** If in the judgement of the Head Referee, the damage results in the ROBOT no longer complying with *Section 4.6* (e.g. the fabric is torn to the extent that it no longer covers the pool noodles) then the ROBOT will be DISABLED per G20. R21-D does not permit multiple layers of cloth for purposes other than satisfying the requirements of R27.

#### **Q423**

**Q.** May a team partially show the opposite bumper color if they are using reversible style bumpers and the majority of the bumpers display the correct alliance color.

**A.** No, R27 requires red or blue BUMPERS and makes no accommodation for red and blue BUMPERS.

#### **Q421**

**Q.** R26 says: "To be considered supported, a minimum of ½ in. at each end of the BUMPER must be backed by the FRAME PERIMETER." The frame provided in the KOP does not have the required 1/2"

support on 4 of the 8 sides forming 4 corners. Since the provided frame is not compliant with the bumper rule, will the 1/2 rule be amended, or will those using the KOP frame be forced to add frame in those 4 locations?

**A.**Please see [Q271].

### Q390

**Q.**As per rule R21a, may the backing board for a bumper 4 1/2 in tall for its entire length? If no, may we put a notch in the bumper to allow clearance (per the pocket and clearance hole allowance)?

**A.**Per R21-A, small clearance pockets are permitted provided they do not significantly affect the structural integrity of the BUMPER.

### Q388

**Q.**R21-C says pool noodles should be "approximately 2 1/2 in." What is the tolerance for "approximately"? Plus or minus 1/4"? A hair? A smidgen? A smoot?

**A.**There is no FRC specific definition of "approximately". The term approximately is used to recognize that pool noodles are not manufactured to precise tolerances and that slight compression may occur when the fabric is pulled taught on the BUMPERS.

### Q385

**Q.**Do the bumpers need to be included in bag and tag, or can they be finished after as part of the 45 pound limit?

**A.**Please see [Q266].

### Q376

**Q.**Can we add grip tape or other material in addition to the fabric on our bumpers?

**A.**No, this would not be consistent with R21-D.

### Q360

**Q.**We are looking for a clarification on R28 about team numbers on bumpers. With the size criteria being met, would white numbers outlined in another color be legal?

**A.**No, per the combination of R27 and R28.

### Q356

**Q.**A 1/4 inch gap is allowed by R26. The kit chassis has 1/4 inch protrusions all along the sides. If the bumper is up against these bolts there is no way to touch at each end. Is the intention of the rule to force all teams to use pocketing for every bolt along the side of the frame? What is intent?

**A.**The intent is that at least 1/2 in. on each end of each BUMPER be backed by the FRAMER PERIMETER per R26 and Figure 4-10. The way a team chooses to meet this requirement is not specified.

### Q341

**Q.**Does this mean the bumper must be less than 1/4" away from the frame, touching the frame, or neither?

**A.**Either contacting the frame or a gap of less than 1/4 in., every 8 in., satisfies R26.

### Q339

**Q.**Are rubber latches allowed on the bumpers?

**A.**Please see R21-F.

### Q337

**Q.**Could you please provide a clarification to rules R2 and R26, including the update from 01-14-14 for R26? Bumpers do not bend. How can a 1/4 inch gap be allowed along the frame perimeter except in the 1/2 inch ends. Can a filler piece be added to the back of the bumper in the 1/2 inch end?

**A.**BUMPERS should not bend. R21-A allows pocketing of the BUMPER backing to facilitate a tight, robust

fit with the FRAME PERIMETER. Filler pieces may not be added to the BUMPER.

### Q329

**Q.**Taping the noodles to the bumpers has been ruled illegal. Can we have multiple layers of fabric on the bumpers? What if blue fabric is under red fabric? Is it legal to use small strips of fabric to attach the bumpers to the wood before covering them with the correct color fabric?

**A.**Please see *Team Update 2014-02-11*.

### Q328

**Q.**We would like to represent our team number on the bumper in both standard numerals ("4203" left side of the bumper) and in ancient Greek (right side of the bumper). Is this legal?

**A.**No.

### Q323

**Q.**We would like clarification on Rule 26-B... Does this rule mean that the bumpers must be attached via some type of bracket every 8 inches, or does it mean it must be backed by the frame every 8 inches?

**A.**The latter.

### Q312

**Q.**In Rule R21 D it states that the bumpers must be made from a rugged smooth material. Can a team add a small amount (~2-3 sq inches ) of material (such as rubber or surgical tubing) to the top of the bumpers to add traction for the ball to roll up?

**A.**No, BUMPERS must be constructed to satisfy all rules in [Section 4.6: BUMPER Rules](#).

### Q304

**Q.**May we have two sets of bumper covers, one set red and the other blue with team number per R28, that are attached with Velcro and slip over/wrap over and cover the bumpers mounted per R21?

**A.**There are no rules prohibiting this.

### Q303

**Q.**Are the bumpers part of the lockup? Can we finish work on the bumpers during the No Build period? The bumpers appear to be separate from the robot, which is the subject of the lockup.

**A.**Please see [Q266].

### Q302

**Q.**R21 C states that teams should use a pair of 2.5" pool noodles. Does that requirement refer to the pool noodle's size when on the robot, the pool noodles size when purchased, or both? Is compressing pool noodles legal?

**A.**1) Both. 2) No.

### Q297

**Q.**With the regards to the 20 inch extensions pass the frame. Is the extension allowed all sides at all time after the game begins. If so, what is the purpose of the bumper when it cannot protect the robot from possible damage from other robots' extensions?

**A.**1) Yes. 2) The purpose of the BUMPERS are to provide a uniform way for teams to indicate their ALLIANCE and team number and to minimize ROBOT damage by creating a padded, uniform surface for most ROBOT to ROBOT contact. Per G28, ROBOTS may not contact opponent ROBOTS on or inside their FRAME PERIMETER. ROBOTS extending elements outside their FRAME PERIMETER do so at their own risk; contact between two such elements or between such an element and another ROBOTS BUMPERS is not a violation of G28.

### Q295

**Q.**in reference to 4.6.4 R22 it says that the bumpers must be located in a bumper zone between 2" and 10" above the floor. Chasis that came in the KOP only has a 1.5" clearance from the floor. In order to

cover the chasis, the bumpers are below 2"...what is the ruling on this??

**A.**There is no rule limiting ROBOT pieces within the FRAME PERIMETER under the BUMPER ZONE. Per R22 the BUMPERS must be located entirely within the BUMPER ZONE.

#### **Q287**

**Q.**In reference Q286 and Q271. The flange is on the top (front to back) of the side piece. There is a gap between the inner and outer plates. If the bumper spanning this gap is firmly attached to the side bumper, does it meet the 1/2" requirement for the outer end?

**A.**Each BUMPER must meet the requirements of R26. Connection to another BUMPER is not the same as being backed by the FRAME PERIMETER.

#### **Q286**

**Q.**To be considered supported, a minimum of 1/2 in. at each end of the BUMPER must be backed by the FRAME PERIMETER. Does backed in this 1/2 in section mean touching or does the 1/4 in gap rule allow a gap also in the 1/2 in ends of the bumper?

**A.**The former.

#### **Q282**

**Q.**My team's robot numbers are split up as 11 and 48 on the same side of each robot. However, on the corner it can look like 4811 instead of 1148, but on the side of the robot, it is clearly 1148. Does this violate the bumper rules or not because the number is evident on each side of the robot?

**A.**The purpose of this forum is to clarify Rules. We will not use it to declare strategies or designs unequivocally legal or illegal as there are factors in play beyond this forum. Per R28-C the Team number must be displayed such that it is unambiguous around the perimeter of the ROBOT from any point of view. If it looks ambiguous to you, it will probably be ambiguous to an Inspector as well.

#### **Q268**

**Q.**As Per rule G27 robots can not use a wedge mechanism in order to flip other robots, but can we put our bumpers on an angle in order to help aid the ball in rolling into our chassis?

**A.**BUMPERS must be backed by the FRAME PERIMETER and may not go inside the FRAME PERIMETER (see Figure 4-5). Please see the Blue Box on R2 for help determining the FRAME PERIMETER of the ROBOT.

#### **Q262**

**Q.**(1) For a given bumper, is it necessary that each length of noodle be contiguous? (2) For example, could a 32" long bumper be comprised of one 32" long section of noodle for the bottom and two 16" sections for the top?

**A.**There are no rules prohibiting this.

#### **Q251**

**Q.**Regarding R28 we would like to know if it is possible to have more than one team number printed in each side of the robot. In our case, one of the sides of the robot is split in two 8in. bumpers and we would like to print the whole team number in both halves.

**A.**There is no explicit prohibition to multiple instances of Team numbers on the same BUMPER. However it is in the Team's best interest to make sure R28-C is met unambiguously.

#### **Q245**

**Q.**3/4 inch plywood is not available in Germany where our team resides. The closest we can find is 17mm which is less than a 1/16th of an inch off. Can we use the 17mm thick plywood in place of the prescribed 3/4 inch material? This has passed inspection during the past five years.

**A.**Per the 6th paragraph of *Section 4* of the *Game Manual*, if your team has a question about a metric-equivalent part's legality, please e-mail your question to [frcparts@usfirst.org](mailto:frcparts@usfirst.org) for an official ruling.

#### **Q240**

**Q.**In constructing bumpers, may we cut a 1.25" wide (1/2" deep) groove out of the entire length of the

longest side of the wooden bumper backing panel to make room for the nut and bolt ends that protrude out of the side of the frame perimeter?

**A.**This would not be considered a "small clearance pocket and/or access hole" and thus not legal per R21-A.

### Q226

**Q.**The wood backing to our bumper is shorter than the bumper. The backing is 2 1/2 inches shorter than the pool noodles on both ends. Does the wood backing have to be the exact same length as the length of the robot frame?

**A.**There is no requirement that the wood backing of any BUMPER be the same length as the FRAME PERIMETER. However, please note the requirement that each corner of the FRAMER PERIMETER must be covered by at least 8 in. of BUMPER (meeting the full cross section shown in Figure 4-8) per R19.

### Q221

**Q.**4.6.3 R21 bumper rules: D. be covered with a rugged, smooth cloth. What defines a rugged smooth cloth? As long as it is the correct color and rugged does the content of the fabric matter? Cotton, vinyl, canvas, leather, pleather, felt. Where are we going with this?

**A.**There is no specific definition of "rugged, smooth cloth." The determination of if a material is considered rugged and smooth is ultimately up to the Inspectors at your event, however the citation of the recommended material in the blue box of R21 is intended to give teams an understanding of the expectations of "rugged" and "smooth."

### Q211

**Q.**If the corner is sharper than 90 deg does the bumper follow the sides or the perimeter line. An inspector told us to follow the perimeter line with the bumper not the rigid side of the robot. I do not want to interpret the rule one way, have inspectors rule another negating our robot concept.

**A.**In Figure 4-5, the FRAME PERIMETER is outlined on each ROBOT in black. Per R19, each outside corner of the FRAME PERIMETER must be protected by BUMPERS on either side. Per R26, the end of each BUMPER must be supported by the physical frame/structure of the ROBOT at each end. Yes, the BUMPERS have to follow the FRAME PERIMETER. Yes, the BUMPERS also need to be supported by the rigid side of the ROBOT at each end.

### Q207

**Q.**My question comes with respect to figures 4-7 and 4-9 and that in these figures the corners of the bumpers come at 90 degree angles not rounded angles. I did not however find any rule disallowing this but wanted to verify this would be ok to be used as there is no mention of them in the rule book.

**A.**There are no rules requiring BUMPER corners to be 90-degree angles.

### Q202

**Q.**Do bumpers follow the perimeter or the robot side when they differ? Specifically when the end of the robot is concave with no width on the end points End inner side is 8" with bumpers. Is this OK? |\\_\_\_\_/| | | Rule 19 & 4.5 do not answer the question An inspector says follow perimeter

**A.**Per R19, at least 8 in. of BUMPER must be placed on each side of each outside corner of the FRAME PERIMETER.

### Q199

**Q.**If we construct the bumper as per the rules, can we angle the bumper so that one end is higher than the other? If not, can one portion of the bumper be higher than the other and still use a U shaped bumper?

**A.**1) No. Please see the Blue Box below R22. 2) There are no rules requiring that all BUMPERS be located at the same height. We cannot comment on the "U shaped bumper" as this portion of the question is not a clear question about a specific rule.

### Q198

**Q.**Could you define articulated on the bumpers?

**A.**There is no formal definition of articulated. Generally, any motion of the BUMPERS relative to the

FRAME PERIMETER will be considered a violation of R23.

#### Q184

Q.Can we use rounded corners on the robots bumpers or do we need them to be 90 degree angels as in the diagrams in the rule book.

A.We do not fully understand your question. Please rephrase it with respect to a specific Rule or Figure.

#### Q178

Q.Protrusions of up to 1/4 inch are allowed by R26. If these protrusions are spaced more than 8 inches apart, is that allowed without additional support between Backing and Perimeter? Are recessed in Backing to house 1/4 inch bolt head protrusions allowed so the Backing sits flush with Perimeter?

A.1) Yes. 2) Please see R21 as updated by *Team Update 2014-01-21*.

#### Q166

Q.Can you bevel the Bumper as long as it doesn't alter the cross section? For example, making a wider gap for the 2014 aerial assist ball to fit through assuming the longer end of the gap is 8".

A.As far as we can conceive, beveling a BUMPER would change the cross-section and thus be a violation of R21.

#### Q162

Q.In figure 4.5 of rule R19, the bottom left image shows an inset on the frame perimeter, however it shows the bumper being at least 8 inches long. Is it allowed to have less than 8 inches of bumper on each side of the inset, if that side is less than 8 inches?

A.No. The 8 in. rule of R19 applies to all corners of the ROBOT FRAME PERIMETER (except when a side of the FRAME PERIMETER is less than 8").

#### Q140

Q.If the robot is U shaped do the bumpers need to go around the tips of the U and into the robot? If not can the tips of the U be less the 8 inches wide?

A.Please see *Figure 4-5*.

#### Q130

Q.R26 If the frame has 1/4" fasteners (bolt heads/rivets) protruding in the center of a side of the perimeter, which must offset the bumper, is that 1/4" gap between the frame and the bumper backing material allowed the length of the bumper - to the ends of the frame - on that side?

A.Please see *Team Update 2014-01-21*.

#### Q87

Q.Are there any restrictions on the material backing the bumpers? Does it have to be wood?

A.Please see R21-A.

#### Q17

Q.Are reversible bumpers allowed, as in the 2010 competition?

A.BUMPERS must meet the criteria outlined in [Section 4.6: BUMPER Rules](#). However the Team meets these criteria is up to the Team.

## Motors & Actuators

#### Q384

Q.Is it illegal to have 7 CIM motors? 6 of the motors would be used while the 7th is just to balance the weight on the robot and will not be connected at any point during any matches.

A.The limits in R29 apply regardless of whether the motors are used as motors or as ballast.

**Q316**

**Q.**Compressor specifications. Is 1.05 cfm measured at free flow or under pressure?

**A.**The 1.05cfm is the maximum rated flow rate at any pressure.

**Q307**

**Q.**What is the legality of having a power latch from a car door on the robot?

**A.**Please see R29.

**Q292**

**Q.**Can we use linear screw actuators? I did not see any specific rule barring that type of actuator.

**A.**Please see R29.

**Q291**

**Q.**Is there a required distance apart for motorcontrollers when they are stacked? We want to stack motor controllers on top of each other and were wondering if they need to be a certain distance apart.

**A.**There are no rules specifying minimum motor controller spacing on the ROBOT. We strongly recommend consulting manufacturer documentation regarding spacing for proper airflow and/or visiting the [FIRST Forums](#) for technical assistance.

**Q289**

**Q.**May a switch be connected across a unpowered motor that is not connected to a Spike, Talon, Victor, Jaguar or other power regulating device.

**A.**No, per R36.

**Q288**

**Q.**May an unpowered motor be installed on the robot with its leads shorted, unconnected to any power regulating device.

**A.**There are no rules explicitly prohibiting this. Please note that R29 and R53 would still apply.

**Q273**

**Q.**R29 Table 4-1 The table indicates under part numbers column for motor name row Window, Door, Windshield Wiper and Seat Motors it says "Various from Automotive Recyclers Association PDV". How are these obtained? What verification, if any, is needed to verify it is a recycled motor? Is there a list?

**A.**Please refer to the voucher supplied in the black Kickoff Kit tote (Bag BVI 10, page 3 on the [Checklist](#)). The burden of proof is on the Team, if necessary. If these motors are used, it's in the Team's best interest to secure a receipt or other paperwork from the Recycler and have on hand at Inspection.

**Q256**

**Q.**Can we use a COTS vacuum without modification on our robot? If not, what modification would be required for this to be legal?

**A.**The purpose of this forum is to answer specific questions about specific Rules. We cannot rule definitively on the legality of a COTS vacuum as there are many factors regarding it's construction and use which determine its legality. Please remember, the only motors legal for use on the ROBOT are listed in *Table 4-1* in R29.

**Q243**

**Q.**The blue box under R30 states that the window motor may not be used without its gearbox due to it being considered integral to the motor. Our team was wondering if we could dismount the worm gearbox off of the window motor and attach it to another legal motor provided that we met all other rules.

**A.**There are no rules prohibiting this.

**Q242**

**Q.**What are the rules on stored energy?

**A.**Please see R31 and R34.

**Q225**

**Q.**Is it legal to use the gear motors PG71 am-0914 in the 2014 FRC competition?

**A.**Please see [Q194].

**Q218**

**Q.**Would this type cylinder be considered an "electrical solenoid actuators"?

**A.**No. The magnet is not used to induce motion (actuate).

**Q217**

**Q.**What is a electromagnet considered then? In Q&A 79, R29 was referred to when asked about electromagnets. Are electromagnets allowed at all?

**A.**We apologize for the confusion. If the electromagnet causes movement, it is covered by R29. If the electromagnet only creates an attraction force, it is legal as long as it meets all other applicable rules.

**Q212**

**Q.**Is a electromagnet considered an "Electrical solenoid actuator", as per rule R29?

**A.**No.

**Q208**

**Q.**With Table 4-1 in R29 in mind would it be legal for us to hypothetically use 6 CIM motors, 4 BaneBots motors and 4 AndyMark 9015 motors as long as each motor type (CIM, AndyMark 9015 etc.) met its individual maximum quantity.

**A.**As these are the maximum numbers of each respective motor allowed in Table 4-1, this is explicitly legal.

**Q196**

**Q.**Are we allowed to replace the wires originating from the motor due to them being trimmed shorter every year? R30-b states that "The electrical input leads may be trimmed to length as necessary" but does not mention extending the wires without the use of crimps.

**A.**Replacing motor wires is not listed in R30 and thus not a permitted modification.

**Q194**

**Q.**The KOP AndyMark PG71 motor am-0914 is not listed as a legal motor. Why?

**A.**The PG71 gearmotor (am-0914) is a combination of a motor (am-2161) and a PG71 planetary gearbox. Per R29, the am-2161 is a legal motor.

**Q193**

**Q.**Can we use a fisher price motor?

**A.**Please see R29.

**Q187**

**Q.**What are the total of all motors combined that can be used at the robot at once.

**A.**Please see Table 4-1 included in R29.

**Q169**

**Q.**So if the wattage is under 10 watts (assuming no PF and wattage calculated at volts times amps) voltage (24 V) X 0.322 amps will put us at 7.728 watts (under the 10 watt limit) and there is no discernable external stroke (the internal movement is under 1 inch) we should be good?

**A.**Please see *Team Update 2014-01-21*.



**Q155**

**Q.**Are we allowed to use the Bimba Magnetic Cylinder in the Robot?

**A.**There are no rules specifically prohibiting these, provided they meet all applicable ROBOT Rules.

**Q144**

**Q.**Are electric clutches allowed? And if so, can they be run from the solenoid breakout card since they are essentially a fancy solenoid?

**A.**An electric clutch is considered a solenoid actuator, and thus limited by R29.

**Q85**

**Q.**Assume that update re R29 pertains to Banebots motors only (other motors previously list are still allowed)?

**A.**Team Updates show excerpts of the Game Manual from sections which have been changed, with changes highlighted in yellow. The full text of the updated rule can be viewed in the manual after the update has been published. In the case of R29, the M7-RS775-12 motor was added to the existing list of motors.

**Q79**

**Q.**Can we use an electromagnet on the robot?

**A.**All actuators must meet criteria defined in R29.

**Power Distribution****Q444**

**Q.**Are variations of the Enersys NP18-12 battery allowed? IE NP18-12B or NP18-12BFR (Flame Retardant Case & Cover)

**A.**Per the Blue Box associated with R31, please contact [frcparts@usfirst.org](mailto:frcparts@usfirst.org) to seek approval for an equivalent battery and include the battery supplier and part number.

**Q355**

**Q.**Is it acceptable to use wire that is not the color specified in R49A or B and: 1) Wrap the whole length of the wire with electrical tape or tubing that has the correct color. 2) Apply a single wrap at each end of the wire of electrical tape or tubing that has the correct color.

**A.**1) No. 2) No. R49 refers to the color of the insulation as provided by the manufacturer.

**Q350**

**Q.**In response to our previous question, can we use an additional 12VDC-to-5VDC converter for a custom circuit on one of the 30 amp load terminals on the Power Distribution Board?

**A.**There are no rules prohibiting this.

**Q296**

**Q.**Our 3351 motor, "bag motor", is connected to a talon controller, can we connect our talon controller to a 30-Amp on the Distribution Board?

**A.**There are no rules that specify a specific breaker value for a motor.

**Q285**

**Q.**Are properly rated, manual, switches (installed for safety) allowed between the PWM controller and motors? Thanks

**A.**This would be a violation of R53.

**Q278**

**Q.**Our team is planning on installing LED lights on our robot that are controlled by an Arduino, but said

lights require 5v DC and cannot be powered through the arduino. May we splice the power for these lights into the regulator that is used by the D-link?

**A.**No, please see R43.

#### **Q276**

**Q.**We want to use two cameras. In order to do so, we need to plug the second in somewhere. 1. May we use an additional 5v convertor (for the camera instead of the D-Link)? 2. May we plug it into the same 5v port on the Power Distribution Board as the first camera?

**A.**1. There are no rules explicitly prohibiting this. 2. There are no rules prohibiting this, however please note R44.

#### **Q275**

**Q.**How long can the wires between the batteries and the Power Distribution Board be?

**A.**There is no specification regarding the wire length between the ROBOT battery and Power Distribution Board. Per R5-A, no more than 12 in. of cable per leg may be included as part of any battery assembly.

#### **Q264**

**Q.**So, does this mean we can wire a motor/controller to a circuit breaker, rather than using a power distribution board?

**A.**Please see R36.

#### **Q261**

**Q.**Rule R35 points out that the power circuit should be connected as the image suggests. Is it allowed to use an additional APP connector between the 120 AMP circuit breaker and the power distribution board since a connector does not heavily impact performance?

**A.**No, as that circuit would not match *Figure 4-11*.

#### **Q250**

**Q.**Can you power a USB camera from an on-board laptop?

**A.**Yes.

#### **Q249**

**Q.**Can any motor be wired to a motor controller connected to a 30-Amp fuse?

**A.**Per R45, only Snap Action circuit breakers, not fuses, may be used in the Power Distribution Board. Per Table 4-2 and Table 4-3, 30 Amp Snap Action Breakers may be used with any motor provided the circuit wire size is #14 AWG or larger.

#### **Q206**

**Q.**Our concern is with R52 . We would like to know if one PWM out cable is allowed to power two Victors. We understand the limits on Victors controlling a limited number of motors. We would have each motor controlled by its own Victor, but please let us know if one PWM is allowed to power two Victors.

**A.**R52 applies to servos. There are no rules explicitly prohibiting connecting multiple motor controller PWM inputs to a single PWM output on the Digital Sidecar.

#### **Q179**

**Q.**Is it legal to have an on-board projector? Does the internal battery of this on-board projector violate R31 or is it included in the exception? If it violates R31, is it legal to use the projector if it is powered using the PDB via a USB from 12V-5V transformer?

**A.**Internal batteries are only allowed for COTS computing devices or cameras, not projectors.

#### **Q88**

**Q.**Is it permitted to use one robot battery to charge your pneumatic systems just prior to a match and then replace that partially spent battery with a freshly charged battery right before going on the field?

A.Yes.

#### Q81

Q.Is it acceptable to use the SB120 Anderson Power Pole connector in lieu of the standard SB50 connector, when connecting the robot battery to the main circuit breaker and power distribution board.

A.No. Please see *Team Update 2014-01-14*.

#### Q26

Q.Rule R39 - what does "easily" mean? Does it mean that the PDB must be visible if the robot is in its normal upright position, or is it OK to turn the robot on its side to look at the PDB? Is this during inspection only, or does it have to be visible while the robot is on the field?

A.The Team must be able to put the ROBOT in a configuration where the PD Board and circuit breakers are easily visible to the Robot Inspector. There is no requirement for the PD to be visible during a MATCH. However, having the PD visible with the ROBOT in its "normal" position can aid in on-FIELD troubleshooting.

## Control, Command, & Signals System

#### Q406

Q.Are teams allowed to have third party software like RoboRealm running on the driver station laptop (software that communicates with Labview) during matches? Furthermore, will the Windows settings on the driver station user account allow RoboRealm to be run?

A.There are no rules prohibiting this provided the conditions of R91 are met. For technical assistance please see the [FIRST Forums](#).

#### Q400

Q.Is it allowable for there to be multiple Allen Bradley (P/N: 855PB-B12ME522) signal lights with only one being controlled by the DSC RSL and the other(s) not but rather be used for other uses.

A.No, per R63.

#### Q357

Q.Is it legal to use a Y-splitter for two pistons connected to one double solenoid to one solenoid breakout output?

A.Please see [Q195].

#### Q352

Q.Is it legal to use a Y-Splitter to connect multiple solenoids to one Solenoid Breakout output?

A.No, per R51.

#### Q343

Q.Would it be legal to use limit switches?

A.There are no rules explicitly prohibiting this. The purpose of this forum is to answer specific questions about specific rules, not to provide pre-inspection or rule definitively on the legality of a specific part. All parts used on the ROBOT must be evaluated for their compliance with all ROBOT rules.

#### Q319

Q.We have an 8 slot P/N cRIO-9074 purchased from National Instruments in a previous year. It does not meet the part number requirements specifically but we believe it is the same cRIO as part number cRIO-FRC. Can it be used on the robot if imaged with image version FRC\_2014\_v52?

A.The cRIO-9074 is not an identical component to the cRIO-FRC. Per R54 the cRIO must be P/N: cRIO-FRC or cRIO-FRCII.

#### Q317

Q.Can the robot be programmed to perform (pulse width modulation)?

**A.**The purpose of this forum is to answer specific questions about specific rules. For technical assistance please visit the [FIRST Forums](#).

### Q309

**Q.**Is it legal to use a Windows 8 tablet PC on the robot running RoboRealm for Vision Processing provided that the tablet is entirely self-contained? (Powered using the built-in battery, connected to the network adapter using an ethernet cable, not directly affecting current flow-paths)

**A.**There are no rules explicitly prohibiting this.

### Q237

**Q.**A) Is it permissible to have 2 NI 9472 modules and 2 solenoid breakout boards in our cRIO? B) Can we power one or both solenoid breakout boards at 24V using a COTS or custom 12V to 24V converter connected to a PD Board output protected by an appropriate (e.g., 20A) breaker?

**A.**A) There are no rules prohibiting this. B) No. Please see R53.

### Q227

**Q.**Are we allowed to use fiber optics to extend the led lights from the face plate of the D-link to the visible exterior of the robot so we can place the D-link inside of the robot if the led lights are still visible?

**A.**No, see R62.

### Q220

**Q.**Are we allowed to send data from the robot into our driver station laptop for computation then send it back to the robot?

**A.**There are no rules explicitly prohibiting this; however, please note that only specific ports and allocated bandwidth are available on the network per R58-A and R58-B respectively.

### Q215

**Q.**Where is the LAC for wind river located?

**A.**The purpose of this forum is to answer specific questions about the *2014 Game Manual*. Please, either rephrase the question to be a question about a Rule or visit the [FIRST Forums](#) for technical assistance.

### Q214

**Q.**can a robot have 2 c rios?

**A.**Per R54 all control of the ROBOT must be via one (1) programmable National Instruments cRIO. There are no rules explicitly prohibiting the use of additional cRIOs provided they are not used to control the ROBOT.

### Q147

**Q.**Can a Kinect not issued by FIRST be used on the robot?

**A.**There are no Rules prohibiting this.

### Q93

**Q.**Rule R72 allows only a capacitor for noise filtering across motor leads. Instead of that, can the motor wires be passed through a ferrite bead with one wrap? Reasons are that it is more effective at RF frequencies, more mechanically robust, and it leaves the motor wires intact.

**A.**There are no Rules that prohibit this.

### Q58

**Q.**Having the same problem as frc5232, our 2go PC given to us in green tote says that the Windows 7 is not authentic and needs to be validated. This is becoming very troublesome, please help!!!

**A.**Please see [Q57].

**Q57**

Q.Computer does not have Windows7 activated. What do we do???

A.Please see [this thread](#) on the FRC Forums.

## Pneumatic System

**Q504**

Q.Nominal 0.160" ID tubing has a diametral manufacturing tolerance of  $\pm 0.005$ " possibly making the ID larger than 0.160". ID measurement methodology of this soft, possibly oval plastic product is unspecified. Does an invoice showing the tubing has an .160 I.D. show the tubing meets rule R77 E?

A.If the tubing is sold as 0.160 in. diameter tubing, it is 0.160 in. diameter tubing.

**Q486**

Q.Does rule R89 only apply when the robot is disabled and no solenoid valves have electrical power?

A.R89 applies regardless of the state of the ROBOT or its components.

**Q477**

Q.Is a three position closed center solenoid valve legal? Or does the closed center feature cause a violation of R89?

A.The purpose of this forum is not to provide pre-inspection for specific parts or configurations. Per R89, the pressure vent plug must relieve all stored pressure in the system when operated.

**Q459**

Q.Can the pressure switch be calibrated per the manufacture's directions? (Specifically the Nason SM-2b-115R supplied in the kit of parts)

A.Calibration of pneumatic components per manufacturer-provided instructions would not be considered alteration. The specific part in question is not marketed to be field/user adjustable so any calibration would be considered an alteration and therefore illegal per R76.

**Q386**

Q.Is bypass pressure the p.s.i. used? For example, 100 p.s.i. stored in the pressure regulator and 40 p.s.i. remained after usage, is that the 60 p.s.i. bypass?

A.We apologize for the confusion. Please see *Team Update 2014-02-21*.

**Q382**

Q.Are we allowed to pre-fill multiple off board pneumatic tanks (via an off-board compressor that is operated by the robot) and then use the tanks to fill our on-board tanks? The point of this would be to be ready for matches faster.

A.No, per R85.

**Q381**

Q.R77 - Would an air manifold similar to those found on McMaster-Carr (<http://www.mcmaster.com/#air-manifolds/=qqd5cv>) be considered a legal pneumatic fitting per R77? Specifically, we are considering using (<http://www.mcmaster.com/#5975k11/=qqd9ia>) as a replacement for a series of brass tees.

A.Please see [Q27].

**Q369**

Q.Can we add a COTS moisture separator to our pneumatic system to remove condensation?

A.No, per R77.

**Q365**

Q.R87 Would pneumatic tubing be considered a "legal fitting" for the purposes of satisfying R87?

A.No.

**Q362**

Q.Is 1/16" ID / 1/8" OD pneumatic tubing permitted under R77-E.

A.Yes.

**Q354**

Q.If a Pneumatic COMPONENT is used outside of the ROBOT's Pneumatic system (i.e. no air pressure will ever pass through the COMPONENT), does R76 still apply?

A.Yes.

**Q353**

Q.Is it legal to use an additional analog pressure transducer along with the included switch?

A.Please see R77-F.

**Q345**

Q.Regarding R75, how do we demonstrate that a manufacturer has rated a storage tank for a working pressure of at least 125 psi? Is a printout of a website listing showing the rated pressure adequate proof for this rule? Or a printout of a spec sheet? Or a letter from the manufacturer? Any of these 3?

A.Any documentation from the manufacturer is acceptable.

**Q344**

Q.Is it legal to use a 2 to 1 air booster on the pneumatic system on the robot?

A.The only items allowed in the pneumatic system are detailed in R77.

**Q342**

Q.Is it legal to plug one of the outputs on a solenoid valve?

A.There is no rule that prevents this.

**Q333**

Q.We are thinking of using a speed control valve with a manual override Pilot operated check valve (SMC ASP-X352). Is this allowed?

A.Flow control valves which meet all other pneumatics rules are allowed per R77-F.

**Q327**

Q.R90 states that the outputs from multiple valves can't be connected together, but can the output from a valve be connected to the input of another?

A.There are no rules explicitly prohibiting this.

**Q325**

Q.We would like to use a Viair 250C-IG compressor on our robot (12 VDC, 0.86 cfm @ 0 PSI). This compressor ships with a stainless steel leader hose. The manufacturer specifically states that this leader hose should not be removed from the compressor. Would this hose be considered a connecting fitting fitting under R77-F, a component of the compressor (in which case, the question becomes moot), or, similar to the manufacturer/original equipment exemption in R47, be exempt from the appropriate rules (R77, R83, and R87 come to mind)?

A.Required, integrated parts that come from the manufacturer as part of the compressor are considered part of the compressor for the case of R77.

**Q324**

Q.We found solenoids with the 1/4" NPT diameter. We found rule R77C to restrict solenoid port size to 1/8" NPT, but would it make the solenoids (SMC NVF3130-6G-02T-X119) legal if we put fittings on all the ports reducing the size to 1/8" NPT?

A.No.

### Q318

Q.is it legal to use a 3/4" bore on a pneumatic cylinder with a 1" stroke?

A.The purpose of this forum is to answer specific questions about specific rules, not as a generic pre-inspection for a part's legality. All pneumatic components must meet the requirements listed in [Section 4.10: Pneumatic System](#).

### Q306

Q.We would like clarification on the legality of regulating the pressure of the return stroke to be less than the out stroke of a piston. Referencing R90, can we put a regulator after a valve, or have two working pressures on our Piston?

A.There are no rules prohibiting this.

### Q305

Q.Would an off the shelf (COTS) pneumatic manifold block with 1/8" NPT ports be considered a connector per R77-F?

A.Please see [Q27].

### Q300

Q.Rule R77-C states that solenoid valves have a maximum of 1/8" NPT port. You offer FIRST Choice items via Andy Mark, fc14-133 with M7 ports and fc14-137 with M5 ports. Q151 states that M5 ports are 'legal'. So are M7 or equivalent ports 'legal' as you included them in FIRST Choice?

A.FIRST Choice pneumatic components are legal for use per R77-A.

### Q298

Q.If our compressor is off-board the robot, does the spike needed to control the compressor still need to be mounted on the robot or can it be off-board as well? We would then connect not only the compressor to the robot, but also the PWM cable for the spike and the cable for the pressure switch.

A.Only the items in R85 may be off-board the ROBOT.

### Q294

Q.Thank you !!!!! With regard to R77 A -- R77 -- The only pneumatic system items permitted on 2014 FRC ROBOTS include the items listed below. A) Items available in the 2014 KOP Are all First Choice Pneumatic items considered to be part of the Kit of Parts?

A.Please see the definition of "Kit of Parts" in the *Glossary*.

### Q284

Q.Edit Q283 -- Sorry!! With regard to R77 is the Festo VUVG-L10-B52-T-M7-1P3 solenoid valve that was available from FIRST Choice as fc14-098 legal ? This is the same valve from the KOP in 2011 and was legal then.

A.Please see [Q248].

### Q281

Q.Do we need an air storage tank on the robot if all we plan to do is release air from our cylinder?

A.The only required components of a pneumatic circuit are listed in R78. Figure 4-15 depicts one example of the high pressure part of a legal pneumatic system.

### Q258

Q.Are teams required to use the Nason Pressure Switch (am-2006) or can we use another switch that stops below 120 psi?

A.Any pressure switch may be used, provided it meets all applicable ROBOT rules.

**Q253**

**Q.**Is the Festo VPLE18-M5H-4/2-1/4 solenoid valve compliant with R77?

**A.**Please see [Q248]

**Q248**

**Q.**can a smc single valve (sy3140-5Fu) be used ?

**A.**The purpose of this forum is to clarify meaning and intent regarding specific Rules. It is not a pre-Inspection tool used to determine if a part, design, or method is legal.

**Q241**

**Q.**If a solenoid manufacturer quotes proof pressure of greater than 125 PSI, does this meet the requirement of R75 "working pressure of at least 125psi".

**A.**No, working pressure is not proof pressure.

**Q236**

**Q.**Is it legal to add a spring on to a pneumatic piston?

**A.**Yes, so long as the spring is added in a way that does not cause modification to the pneumatic cylinder.

**Q235**

**Q.**Are we allowed to use one of the valves allowed as pneumatic pressure vent plug valves to control a cylinder? We would open and close the plug valve with a motor that turns the valve handle, i.e. without modifying the valve itself.

**A.**No. Per R89 only one pressure vent plug valve may be used on the ROBOT which, when manually actuated, must vent to the atmosphere to relieve all stored pressure.

**Q228**

**Q.**Regarding the order of pneumatic components ... Can the "working" pressure regulator come after the solenoid in a pneumatic system?

**A.**Please see R83.

**Q201**

**Q.**Is there a rule that would prevent the use of a spring type accumulator in the pneumatic system?

**A.**There are no rules explicitly prohibiting this.

**Q200**

**Q.**Is there any rule that would prevent actuating the handle of a mechanical flow control valve, such as a ball valve, with a motor or other pneumatic method? I cannot find any rule in the pneumatic section that would prevent this, since the ball valve is a valid component under R-77 F.

**A.**A ball valve is not allowed by R77-F.

**Q195**

**Q.**Regarding pneumatic systems, does each pneumatic cylinder need to be controlled by its own solenoid valve? Conversely, can a solitary solenoid valve be used to actuate multiple pneumatic cylinders?

**A.**There are no rules explicitly prohibiting this.

**Q192**

**Q.**Is the use of the integrated check valve feature of a flow control valve plumbed in reverse a violation of R77, that lists a flow control valve but not a check valve as a permitted item (related to Q190)?

**A.**No. Please remember that per R89, actuation of the required pressure vent plug must "vent to the atmosphere to relieve all stored pressure."



**Q191**

**Q.**For the purposes of R90 does a flow control valve have a designated input side and output side?

**A.**There is no rule explicitly dictating the orientation of a flow control valve relative to other pneumatic components. However, please remember that per R89, actuation of the required pressure vent plug must "vent to the atmosphere to relieve all stored pressure".

**Q190**

**Q.**Would pneumatic check valves be considered flow control valves, or are check valves illegal?

**A.**Check valves are not considered flow control valves.

**Q171**

**Q.**Is there any rule that prevents a port on a pneumatic cylinder from venting directly to atmosphere, without any fitting or tubing, so that only one direction of motion is powered?

**A.**No.

**Q154**

**Q.**With regard to R77-C: Can a solenoid valve that has a port diameter that is larger than 1/8 in. NPT be used if the manufacturer specifies an adapter down to 1/8 in. NPT (or smaller) fittings?

**A.**No.

**Q151**

**Q.**Will M5 fittings be legal? They are only slightly bigger than the 1/8 inch NPT port size stated in R77

**A.**Yes, this is a functional metric equivalent.

**Q143**

**Q.**Are rotary actuators allowed?

**A.**There are no Rules that prohibit this.

**Q129**

**Q.**Does R82's 60 psi limit apply to all components downstream of the regulator at all times? Examples where 60 psi could be exceeded: 1) Compress air cylinder faster than the regulator's response; 2) Compress air cylinder being controlled by a 3-position valve that has closed off both pressure ports.

**A.**Yes.

**Q110**

**Q.**On a robot with the compressor on board are we allowed to precharge the air storage tanks before the autonomous period starts?

**A.**Yes.

**Q95**

**Q.**Is it legal to use a pneumatic cylinder which is precharged when needed from a solenoid valve with working pressure as an on demand air spring?

**A.**There are no rules that prohibit this.

**Q86**

**Q.**In reference to R77 C: may a solenoid valve with 1/8 in NPT ports be legally mounted on a manifold block with a larger port size, as the manifold is a discrete component? For example: STC Valve Part Number 4V110-1/8 (1/8 in NPT port) mounted to part number 4V-100M-2 (1/4 in NPT port).

**A.**Yes. Please see [Q27].

**Q62**

**Q.**Is it legal to have air storage tanks (accumulators): A) On the "working" pressure side of the regulator? and/or B) Between a solenoid valve and the pneumatic cylinder(s)? I can find nothing in the rules prohibiting either of these cases.

**A.**There are no Rules explicitly prohibiting either scenario.

**Q60**

**Q.**Is there a limit to the number of air storage tanks (accumulators) used on a robot?

**A.**There is no explicit limit on the number of pneumatic accumulators permitted on the ROBOT.

**Q46**

**Q.**Have the requirement for solenoid valves to have a Cv of .32 or less being removed? 4.10.4 R77 only mentions: C. Solenoid valves with a maximum 1/8 in. NPT port diameter

**A.**Yes.

**Q34**

**Q.**Is a quick release valve, such as the one sold by Bimba (part number 1BQEV), considered a flow control valve, and thus a legal pneumatic component per Rule 77 (F)?

**A.**Quick Exhaust Valves are not included on the list of permitted items in R77.

**Q27**

**Q.**I was wondering if the "Base Mounts" described on this page are legal:  
<http://www.vexrobotics.com/vexpro/all/solenoids-and-manifolds.html> . I think it could be considered a "flow control valve" under rule R77F, which would make legal, but I wanted to be sure.

**A.**A manifold base is considered a connecting fitting and therefore covered by R77-F.

**OPERATOR CONSOLE****Q485**

**Q.**We want to confirm that we are permitted to use TableView to set robot settings through the drive console with the Field Control System at competition. We tried using SmartDashboard, but were having lots of technical problems with it. Thanks!

**A.**There are no rules prohibiting this.

**Q446**

**Q.**G17 states - "During AUTO, any control devices worn or held by the DRIVERS must be disconnected from the OPERATOR CONSOLE." This clearly allows for hand tracking during autonomous. Is sign-tracking legal as well? Signs wouldn't be a form of electronic communication.

**A.**Please see [Q431].

**Q394**

**Q.**We are trying to determine the legality of using a USB to Ethernet converter on the driver station when connecting to the FMS since our new driver station laptop has no ethernet port. The general feeling is that this should be okay, but we'd like to know definitively on its legality for competitions

**A.**There are no rules prohibiting this, however such converters are not officially supported by the FRC Control System and are used at your own risk.

**Q393**

**Q.**Are we allowed to program LED lights through an ARDUINO or do we have to run everything through the cRIO? If we need to run it through the cRIO, can we have the ARDUINO run to the cRIO? (Note: the ARDUINO will have no control over the robot's physical functions)

**A.**There are no rules prohibiting this.

**Q183**

**Q.**Is the SFX dashboard going to be updated at some point to re-include the features that were removed after the beta test? (Specifically the Robot Preferences widget, but in a more working state)

**A.**The purpose of this forum is to answer specific questions about the 2014 Game Manual. Please, either rephrase the question to be a question about a Rule or visit the [FIRST Forums](#) for technical assistance.

**Game - The Tournament****Q503**

**Q.**If a robot has been inspected and has the inspection sticker on it, can the Head Referee disable the robot for a match if he or she says something is wrong, like non-compliant to the starting position, which is not a safety issue.

**A.**Yes. Please see G4 as one example.

**Q495**

**Q.**How is this issue resolved between the Head Referee and the Lead Robot Inspector? The Head Referee says the robot is non-compliant to the starting position and the Lead Robot Inspector says it is. This is not a safety issue. Does "Ultimate" authority trump "Final" authority or vice versa.

**A.**In the event where the Head Referee and the Lead Robot Inspector disagree about the legality of a ROBOT in the ARENA, each position is encouraged to consult with other resources, via phone or in person, and come to a reasonable consensus.

**Q490**

**Q.**Are there rules governing the time frame in which a score (or revised score) can be discussed or contested?

**A.**There are no rules governing the time frame in which a score may be discussed or contested. Please remember that per *Section 5.5.3: Referee Interaction*, the Head Referee will not review recorded replays under any circumstances. Because of this, Teams are encouraged to have discussions with the Head Referee as close to the end of the MATCH in question as possible.

**Q479**

**Q.**What is the requirement when a score is changed many matches (approximately ½ hour) after the final score has been displayed to the audience and posted? Our student was told that they could only contest a score within 2 matches of the contested match. They were not told why the score was changed.

**A.**There are no rules governing the time frame in which a score may be changed.

**Q254**

**Q.**Is there a rule that states a team cannot wear shirts with reflective material outside of the driver station?

**A.**There are no rules explicitly describing what teams may or may not do outside of the ARENA. However, per *Section 5.5.4: YELLOW and RED CARDS*, the Head Referee may assign a YELLOW or RED CARD as a result of egregious ROBOT or Team member behavior at the ARENA. Wearing clothing that is determined to be mimicking the VISION TARGET is not in the spirit of Gracious Professionalism and will be seen as egregious Team member behavior.

**Overview****Q506**

**Q.**On Einstein, how will the alliances be seeded for pre-match logistics for setting up robots in the goalie zone and robots in the white zone?

**A.**On Einstein, each ALLIANCE indicates which, if any, ROBOT(S) will begin the MATCH in the GOALIE ZONE on their LINEUP. Then, both ALLIANCES set up any GOALIE ROBOT(S) simultaneously. Finally, both ALLIANCES set up their remaining ROBOTS simultaneously in the White ZONE.

**Practice MATCHES**

Not Available

**Qualification MATCHES**

**Q483**

**Q.**There appears to be no competition data in the twitter feed for the Nashua, NH or Groton, CT events. Can this data be added to the twitter feed? TNX

**A.**The purpose of this forum is to answer specific questions specific Game Rules. The Twitter feed posts are generated at the conclusion of each match. The software does not provide for posting at a later date.

**Q455**

**Q.**Where can we get access to a database that contains the detailed results (Autonomous score, Teleop score, Penalty points received, Total score ) for each qualification match played? TNX

**A.**This information is not currently made available in database form. The Twitter feed <https://twitter.com/frcfms> contains this information provided that the internet connection at the venue supports posting the data to Twitter at the end of each match.

**Q239**

**Q.**Per the Tournament Rules, 5.3.4, sum of ASSIST points is the second order sort. Will ASSIST points (as well as AUTO, TRUSS, CATCH, TELEOP GOAL, FOUL points) be counted by team or by alliance for qualification seeding?

**A.**The cumulative sums described in *Section 5.3.4: Qualification Seeding* are the cumulative sum of points of that type scored by that TEAM's ALLIANCE in each MATCH for which they were eligible for Qualification Points per *Section 5.3.3: Qualification Score (QS)*.

**Q204**

**Q.**Per the Tournament Rules, the Player stations are assigned 1, 2, and 3. Does the alliance team get to place their robot position in either column 1, 2 or 3, on the floor or must the position of the robot match the player station?

**A.**Other than those described in G4, there are no prescribed places where the ROBOT must be placed on the FIELD prior to the start of the MATCH.

**Elimination MATCHES****Q448**

**Q.**May "Special Equipment" be used by the "Team Representative" during alliance selection (GM 5.4.1)? Is this equipment restricted by T22? Specifically, may the following be used: 1- paper lists & notes? 2- laptop PC? 3- cell phone (for voice call)? 4- smartphone (for text messaging)?

**A.**T22 does not apply to the Alliance Selection process. There are no rules that prohibit assistive devices or team collaboration during the alliance selection process. These methods are permitted, however the team is expected to make quick and expeditious decisions in the interest of keeping the process moving.

**Tournament Rules****Q508**

**Q.**I would like to make a scouting app for my team that would sync data across tablets, but there is a rule against 802.11a/b/g/n/ac networks. I was planning on using bluetooth, which is 802.15, but would that be considered a violation of the rule?

**A.**There are no rules explicitly prohibiting this. If the Bluetooth network traffic is found to be interfering with game play, the team will be asked to disable the system. However, please remember that rules for 2014 do not apply to future seasons.

**Q451**

**Q.**If a T16 replay is called to replace a match in which a team was yellow/red carded, does the card carry forward? If so, does a DQ in the original mean they are DQ'd from the replay, or would they just carry a yellow card?

**A.**If a MATCH is replayed, the conditions that existed at the start of the first instance of the MATCH will be replicated and any events that happened during the first instance of the MATCH are erased.

**Q150**

**Q.**May a TEAM change the student who is designated ALLIANCE CAPTAIN during the Tournament?

A.Yes.

## Championship Additions and Exceptions

### Q420

**Q.**Rule 15 has the following statement: "E. On days a team is not attending an event, they may continue development of any items permitted per R18, including items listed as exempt from R18, but must do so without interfacing with the bagged ROBOT elements." Does this mean that the only time development of those permitted items is when competitions are underway (Thursday through Saturday) or can work be done any time

**A.**"On days a team is not attending an event" includes any day that a team is not attending an event.

## Admin - Introduction

Not Available

## Admin - Communication

### Q482

**Q.**The event actually starts at 9am, with a lunch break from 11:30 to 12:30, and then the event ends at 3pm. Could we have robots out of the bag for 2.5 hours, put them in the bag, and then take them out again for 2.5 hours? We have 5 FRC teams attending this event that has 450 K-12 attendees.

**A.**No, the time limit is per event. With 5 FRC teams attending, you may want to consider rotating what robots are on display at any one time, or bringing in robots from prior years to demo, if you have any available. Also, please keep in mind that you may do nothing with the robot that would be considered 'work on', or 'practice with' the robot, per the rules. Otherwise, this would be an unfair advantage compared to teams that are not doing robot displays. This means you can do no robot repairs or upgrades, or software tweaks, during the display period.

### Q476

**Q.**Can an exception be granted for the 4 hours of out the bag part of display rule 5.4.3.? If a community event involving 450 attendees featuring FIRST robotics ran from 8-3, could an FRC team keep the robot out of the bag for demo purposes if non-drivers only used the robot?

**A.**This would not meet the guidelines given in the rule. If you have a robot from a prior year available, you may want to consider using that robot for a portion of the demonstration.

### Q464

**Q.**Our team is in the NE District. We have competed in two district competitions. We are feel we are on the bubble for the Boston regional. Question is when will we have a definitive answer to the question: Are we going to the Boston regional?

**A.**If you did not win a Chairman's Award, advancement will depend on your final ranking, which can't be calculated until after the final District event on 4/4-4/5, even if you don't happen to be participating in that event. Please contact your District management directly to find out more precisely when those final rankings should be available. Interim rankings are available on the District website now.

### Q131

**Q.**When is Judges Information submittal deadline? It use to be about two days after stop build.

**A.**The Judges Information deadline was January 9th this year. An FRC Email Blast was sent December 12th with this information; please refer to the following link <http://www.usfirst.org/roboticsprograms/frc/email-blast-12-12-13> for further details. We apologize for any inconvenience this may cause.

## Admin - Team Organization

Not Available

## Admin - At the Events

### Q496

**Q.**Can a team leave a 3D printer running in the pits after pits have closed?

**A.** If it can run safely with no one attending it, yes. If you have a question about whether or not it can be run safely, please get with the Safety Advisors at your event to review your specific situation.

#### Q435

**Q.** We are using Stanley 15 amp automatic battery chargers to float our charged batteries. Adhering to the safety guidelines, no battery is charged using more than 6amps. Is this acceptable at competition?

**A.** Per the FRC Safety Manual, you should not be charging your batteries at higher than the manufacturer's recommended rate. The fact that your charger may be capable of charging at a high rate is not an issue, the question is how the charger is actually being used. Using a charger to float your charged batteries should not put you over the manufacturer's recommended rate.

#### Q138

**Q.** Section 4.7.1 Consent & Release Form Please document the procedure for parents to log into the STIMS site to update their child's account if the original email sent by STIMS was lost.

**A.** If the original email sent to parents is lost or deleted, you can still access STIMS by setting up your password at the STIMS login page. Please find these instructions helpful when completing your student's online Consent and Release form:

- Navigate to the STIMS login page (<https://my.usfirst.org/stims/site.lasso>).
- Click on the "I Can't Access My Account" link and enter your login email (that your student provided in STIMS as their parent's email address) to set up your password, select the Proceed button. Check your respective email account for an email from firstteammembers@usfirst.org, and follow the link to complete the process of creating your password.
- When you login to STIMS, you will be taken to a screen to agree to the terms and agreements for this season.
- Once you have accepted the terms and agreements, you will be taken to your Main Summary page.
- On The Main Summary page you will see your account information and your student's account information below.
- Select Edit/View to complete your user profile, then select the Edit/View button next to your student's name and complete their profile.
- When both profiles are complete, you will see an "Edit/View" button in the "Consent Form Status" section.
- Select the Edit/View button to electronically sign your student's Consent and Release form.

Please note:

- Your profile and your student's profile must be "Complete" in order to access their Consent and Release form.

#### Q137

**Q.** Section 4.7.1 Consent & Release Form Is it possible for a student to update his/her parent's email contact in STIMS? We have had a few returning students whose parents have changed jobs and/or emails and there appears to be no way to correct this.

**A.** When a student initially logs into STIMS for the season, they have the ability to change their parent's email address. After this point however, the email address cannot be changed by the student. Please have the student or parent email firstteammembers@usfirst.org with the request to change their parent email address and provide the updated email address.

## Admin - Robot Transportation

#### Q475

**Q.** The admin manual states that "The 'Robot Access Period' only applies to teams attending Two-day District events." As the district championship (FiM in this case) is a three-day event, does that mean there is no access period before it?

**A.** Correct, District Championships are three day events, therefore there is no Robot Access Period available to teams attending those. The Robot Access Period was designed to make up for the loss of 6 hours on practice day, but District Championships schedules include those 6 hours. (Edited to remove reference to 'full practice day', as no event gets a full day of practice.)

#### Q470

**Q.**What is the earliest time we can unlock a robot to work on it under our 6 hrs of work time? Our first competition is March 28/29. I thought it was 7 days prior (which would make the earliest time to unbag March 20th). Another team told us March 30th is the earliest for us.

**A.**You may access your robot 7 days prior to the first scheduled activity on the agenda for your District event. If the first scheduled activity on the event agenda is pits opening on 3/27 at 5PM, you may access your robot starting at 5PM on 3/20.

#### Q468

**Q.**Can we open bag in order to secure robot for shipping? We'd like to bolt robot to wood platform for secure shipment. Or could we bolt robot down through the bag?

**A.**You can bolt down through the bag. Inspectors will not be concerned with small holes necessary to secure the robot.

#### Q467

**Q.**re: Section R5.6.2, "Robot Access Period - schedule". Is the 7 day window relative to the pits opening for load-in on Day 0 (such as 4pm Thursday), or when the pits open the day of the first qualification rounds (e.g. 8am Friday)?

**A.**7 days prior to pits opening for load-in on Day 0, as 'load in' is a scheduled part of event activities.

#### Q439

**Q.**Can a coach operate the robot during an event where the robot was unbagged for a short time?

**A.**If you are asking whether a coach can operate the robot during one of the 'Robot Display' periods covered in Section 5.4.3 of the FRC Administrative manual, the answer is yes, as long as all other rules in that section are followed.

#### Q392

**Q.**We are in a team in a district competition model. The KoP supplies only 6 tags. With 2 district events, 12 hours total of access times (6 before each 2-day district event) in as small as 30 minute chunks, and a display period, we are very likely to run out of tags. How do we handle this?

**A.**Information about how to get more of items provided via the Kit of Parts is posted in the *Where to Get More* document posted [here](#). However, there is no requirement that the specific tags from the KOP be used.

#### Q335

**Q.**Admin manual section 5.1 says construction must stop at "midnight on that date", the date is "TUESDAY, FEBRUARY 18, 2014". Is this midnight at the start or the end of Tuesday? (NIST calls this language ambiguous. See <http://www.nist.gov/pml/div688/times.cfm#midnight> )

**A.**Midnight at the end of the day on Tuesday. At the moment that Tuesday becomes Wednesday.

#### Q320

**Q.**In regards to 5.4.3 of the Admin manual regarding unbagging for events. We are planning a meet and greet with our counties teams and the media after the build season has ended. Does unbagging allow for a 2 hour event like this? How about if we rope off the bots to restrict access?

**A.**Yes, the rules allow for an event like that. As the rules state, just make sure nothing you do with the robots could be considered 'work on' or 'practice with' them. Roping them off would be one way to make sure of that.

#### Q263

**Q.**If during a brief robot display non-driver members are driving and accidentally damage the robot so it requires maintenance- what are the rules for being allowed to repair it?

**A.**Any repair would be seen as "working on the ROBOT" and thus not allowed.

## Admin - Awards

#### Q463

**Q.**If a team has won the Regional Chairman's Award at the first regional they attended, are they allowed to also present at their second regional also?

**A.**No, as they are not eligible to win the award at their second regional, and usually Chairman's Judges have their hands full just getting through the interviews for teams that are eligible for the award.

#### **Q434**

**Q.**According to the new Chairmans rules, a team may submit Chairmans at every competition they go to. Would this rule apply to a third District event if a team chooses to participate in one?

**A.**Yes.

#### **Q428**

**Q.**We have 3 chairman's presenters, one of them is Deaf. He would require an interpreter. Would the advisor be able to be his personal interpreter? We have done this for the past 5 years or will FIRST provide a technical ASL interpreter for our presentation?

**A.**Yes. Please see the update to Section 6.4.3.4 in [Team Update 2014-03-04](#).

#### **Q412**

**Q.**In 6.12.1 If a 3D printed part is part of an assembly of 3D printed parts can all of the parts be submitted for the award?

**A.**Yes. Administrative Manual Team Update 2014-02-25 clarifies <http://frc-manual.usfirst.org/Updates/0#term168>

#### **Q411**

**Q.**6.12.1 In the new 3D printing award. Are parts used on the Operator Interface eligible for the award if they are critical for the effectiveness of robot control?

**A.**Not according to the original rules, which required the part to be used on the robot. But we liked the idea of including the Operator Console in this award, so we added it. See Administrative Manual Team Update 2014-02-25 <http://frc-manual.usfirst.org/Updates/0#term168> Part still must be functional, though, not cosmetic.

#### **Q402**

**Q.**How will Dean's List Award nominees be notified that they need to interview at/before the selected regional? Will the students be contacted before the event or does the team need to inform the students?

**A.**Teams should notify nominees directly that they have been nominated, so they may prepare for the fact that they will be interviewed. The decision to conduct interviews before or at the events is being made locally, based on the number of nominees and other factors. The Judge Advisor for each event is responsible for this process. Contact your District leadership or Regional Director to learn how this will be handled for your particular event. If interviews are to be conducted before events, Judges will work with nominee mentors to set up the date, time, and method. At no time will an adult be having one on one discussions with a nominee, there will always be at least two adults involved. If interviews are to be conducted at events, nominees will be signing up for interview slots, much as teams sign up for interview slots for the Chairman's Award.

#### **Q389**

**Q.**The Dean's List section of the awards chapter states that the nomination essay should be a one-page essay, and, a paragraph later, that it should be no longer than 4000 characters. Which length limit is correct?

**A.**4,000 characters is roughly one page of information, but you should focus on the character limit, as you will be transferring your essay to character-limited text entry box on the submission website.

#### **Q367**

**Q.**how do we submit awards that aren't on the usfirst website?

**A.**All submission information is in Chapter 6 of the FRC Administrative Manual, which can be found here: <http://frc-manual.usfirst.org/> If you specify which awards you are referring to, we can provide additional assistance.

#### **Q346**

**Q.**When submitting an entry for the Entrepreneurial Award, it states that teams may enter at every event they compete at. The system appears to only allow for one entry. Are we to assume FIRST HQ notifies the judges at



every event we compete at that we would like to be judged for this award?

**A.**Yes. More precisely, judges at every event have access through the system to the Entrepreneurship Award submissions for every team at that event who submitted for the award, and judges know they should review all of them.

### Q308

**Q.**Submitting photos for Dean's List says to use 5"x4" 100dpi resolution. Does this mean "landscape" layout only? I uploaded a photo that is portrait orientation and seems to be distorted in the little review window. Is the reason because it was taller than wide?

**A.**It may have been distorted in the preview window because it was taller than it was wide, however, Judges should be able to right click on the image and view it in its native resolution if they wish.

### Q280

**Q.**In previous years the Executive Summary associated with the Chairman's Award had a 500 character limit. This year the Administrative Manual makes no mention of any limit for the Summary. Does such a limit exist and if so what is it?

**A.**The Chairman's Award Executive Summary is made up of several sections. Each section has a character limit. Award submitters from your team will be able to see the character limits if they log in to STIMS (<https://my.usfirst.org/stims/site.lasso>) and visit the Chairman's Award area.

### Q173

**Q.**In the manual, the Chairman's Award is supposed to have a DVD carried into the arena. On the STIMS submission process, the DVD is supposed to be uploaded. Which is correct?

**A.**The STIMS submission process showing a DVD upload was in error, and has been corrected. Sorry about that. However, we will shortly be expanding physical media options for teams to use in passing along their Chairman's Award videos to Judges at events. You will not be required to use a DVD. Please stay tuned to upcoming Team Updates.

### Q33

**Q.**All of the sections of the Executive Summary add up to 12,800 characters, or more than 5 single-spaced pages & longer than the Chairman's Award essay. An executive summary is usually a page or so. Can that be correct, or should the Executive Summary be a bullet item in the essay requirements?

**A.**The character counts listed in *Section 6.10.2* are correct.

### Q7

**Q.**Entrepreneurship Award Question #4: May both a picture and text be submitted for the "Organizational Structure" and "Financial Statement" sections of the Executive Summary via STIMS? Or, should one or the other be submitted?

**A.**Yes, both a picture and text may be submitted. The manual is being updated to reflect this.

### Q6

**Q.**Entrepreneurship Award Question #3: What is the maximum number of pictures that may be submitted with the Executive Summary via STIMS? May these pictures be any larger than 5" x 4" or any higher resolution than 100dpi?

**A.**The maximum number of pictures that can be uploaded in the 'Pictures' section of the Executive Summary is 4, although other sections allow you to upload pictures as well as text. Please do not upload images larger than 5" x 4" and 100 dpi resolution.

### Q5

**Q.**Entrepreneurship Award Question #2: Will the judges be evaluating any portion of the Business Plan other than the Executive Summary text and pictures that will be submitted via STIMS?

**A.**Judges will be focusing on the information submitted via STIMS, but will be visiting teams in their pits to talk to them and will look at additional material given to them there as well. Only teams that have submitted through STIMS will be considered for this award.

**Q4**

**Q.**Entrepreneurship Award Question #1: Will our FRC team be able to upload our entire Business Plan document (40 pages, 1.8MB) in single file PDF format as in years past? Or, will we only enter the Executive Summary text and pictures defined for the award submission in the Admin Manual?

**A.**No, you will not be able to upload your entire business plan, only the elements indicated in *Section 6.10.2* of the Administrative Manual. However, judges will look at additional material provided to them at the event. See [Q5].