

Q1 Major Part Manufacturing for Other Teams

Q: Can Team A make a major part for an assembly for Team B if Team B does not have the required equipment to fabricate the parts but does supply the materials to make the part? For example, a major part of an assembly is a sheet metal part that is very complex in how it is cut out and then bent into shape. Team A has access to a CNC Laser Cutter and CNC metal brake to fabricate the parts for Team B. Is this allowable per Rule I1?

A: The definition of "built by the *FIRST* Robotics Competition team" is intentionally left vague in !I1. Per the Blue Box "Neither I1 nor the language in its Blue Box define specific thresholds for how much of a MAJOR MECHANISM must be the result of the team's effort. I1 expects and requires the team's honest assessment of whether they built the MAJOR MECHANISMS of their ROBOT". In the provided example, where Team B has done the design and final assembly of the MECHANISM, and had Team A do the fabrication of some COMPONENTS, it sounds like Team B could reasonably say they built the MAJOR MECHANISM.

(Asked by **2523** at Sep 11th 19)

Q2 Practice robot versus competition ROBOT at an event

Q: 1. Can a team bring two robots to an event, provided only one of them is a ROBOT? The second robot could be nearly identical, only missing one part of the definition of a ROBOT, and be used for testing in the pit or spare parts. 2. If allowed, would the second robot be allowed to be used on the practice field?

A: Good question! We have updated the rules to include !C5 for the 2020 season. Please see [Team Update 0.2] (<https://firstfrc.blob.core.windows.net/frc2019/2020StopBuildDayTeamUpdates/TeamUpdate0-2.pdf>). If that doesn't answer your question, please rephrase and resubmit.

(Asked by **2177** at Sep 25th 19)

Q3 Ex part D - assembled COTS items

Q: 1. Ex part D would allow a team to bring in a gearbox assembled per the manufacturers directions. Would that include an attached motor, or would the motor need to be removed? 2. Using the VersaPlanetary user guide as a specific example of this general question, it includes instructions on assembling the gearbox with a CIM, BAG, RS-775, or AM-9015 motor. Ignoring the question of motor legality, would the answer to #1 change if the attached motor was not on that list (NEO motor, for example)

A: Good question. Please see Rule Ex in [Team Update 0.2] (<https://firstfrc.blob.core.windows.net/frc2019/2020StopBuildDayTeamUpdates/TeamUpdate0-2.pdf>). If that doesn't answer your question, please rephrase and resubmit.

(Asked by **2177** at Sep 25th 19)

Q4 Scale calibration weights

Q: With the 150 lb weight limit in I3, is it reasonable for teams to expect 150 lbs of calibration weights to be available to confirm proper functioning of the scale? In the past, inspection stations have only had 100 lbs of calibration weights.

A: The purpose of this Q&A is to answer questions related to the interpretation of the rules for INFINITE RECHARGE. If you have a question related to the interpretation of I3, please rephrase and resubmit.

(Asked by **2177** at Sep 11th 19)

Q5 Spare parts as MECHANISMS

Q: I3 states that all MECHANISMS need to be brought to inspection and weighed. Does this mean individual, discrete parts, or would identical spare parts also need to be weighed and inspected?

A: The exceptions in !I4 A,B,D, and E which do not require re-inspection would also allow parts not included in the inspection in !I3 (i.e. the fasteners or spare parts you are adding would not need to have been presented in inspection).

(Asked by **3487** at Sep 11th 19)

Q6 Is a battery required to meet the definition of a ROBOT?

Q: The definition of a ROBOT provided specifies that it "includes all the basic systems required to be an active participant in the game –power, communications, control, BUMPERS, and movement." Does an electromechanical assembly with no battery in it (and thus no power system) count as a ROBOT?

A: A ROBOT with no battery, and thus no power, is not considered a ROBOT for the purposes of the *FIRST* Robotics Competition. However, please see the update to !C5 published in [Team Update 0.2] (<https://firstfrc.blob.core.windows.net/frc2019/2020StopBuildDayTeamUpdates/TeamUpdate0-2.pdf>).

(Asked by **1712** at Sep 25th 19)

Q7 I1 and COTS MAJOR MECHANISMS

Q: The Blue Box of I1 says "Examples that would generally not be considered MAJOR MECHANISMS, and thus probably aren't subject to I1 include, but are not limited to, the following: ... c. COTS items" Are there certain COTS items that would be considered MAJOR MECHANISMS on their own? Or are all COTS items exempt from being considered a MAJOR MECHANISM on their own? If the former, which COTS items currently available to teams would be considered a MAJOR MECHANISM on their own?

A: Yes, the assumption is that it's possible for a COTS item to also be a MAJOR MECHANISM. We are not currently aware of any currently available COTS item that would be considered a MAJOR MECHANISM. A hypothetical 2019 example would be if a VENDOR sold an assembled, bolt-on CARGO intake. Note that if a COTS item constituted a MAJOR MECHANISM, !I1 prohibits its use as it was not built by the team.

(Asked by **1678** at Sep 12th 19)

Q8 Value of designing parts in I1

Q: Does a team designing a MECHANISM influence how much the team has "built" it for the purposes of I1? Assuming that the MECHANISM in Q1's example consisted entirely of COTS items and COMPONENTS manufactured by Team A, the difference between the example in Q1 and exploitation example "a" in the I1 blue box appears to be Team B having designed the mechanism themselves, is this correct?

A: As we referenced in the answer to !Q1, the definition of "built by the *FIRST* Robotics Competition team" is intentionally left vague in !I1. For example, a team neither designs nor fabricates the majority of the components of the Kit of Parts drivetrain (other than trimming down some frame pieces according to instructions) however, the

significant assembly involved would still lead us to say that was "built by the *FIRST* Robotics Competition team". If however, Team A designs and fabricates a MAJOR MECHANISM in a few pieces and provides it to Team B at an event with instructions on how to assemble it, this would likely be interpreted as an attempt to exploit loopholes in I1 (even if the amount of work performed by Team B was similar in both cases).

(Asked by **4682** at Sep 12th 19)

Q10 Possession without intent

Q: If Team A receives "a mostly complete MAJOR MECHANISM" from Team B, but does not attempt to "exploit loopholes" in I1 by attempting to use this mechanism in official match play, has a rule been violated?

A: There are no rules against possessing a MAJOR MECHANISM.

(Asked by **2363** at Sep 12th 19)

Q11 Mechanisms with acceptable use policies

Q: In a situation where Team A receives "a mostly complete MAJOR MECHANISM" from Team B, what are Team B's responsibilities, if any, for ensuring that Team A never attempts to "exploit loopholes" in I1 by attempting to use this mechanism in official match play?

A: Team B has no rules related responsibilities in this situation.

(Asked by **2363** at Sep 12th 19)

Q12 Failing to exercise due diligence

Q: In a situation where Team A receives "a mostly complete MAJOR MECHANISM" from Team B, and Team A subsequently attempts to "exploit loopholes" in I1 by attempting to use this mechanism in official match play, what penalties for rules violations, if any, befall Team B?

A: There are no rules that would penalize a team for giving/lending a MAJOR MECHANISM to another team.

(Asked by **2363** at Sep 12th 19)

Q13 Start building after an event.

Q: R16 says "Once an event a team is attending has begun the team may not work on their ROBOT or ROBOT elements outside of the hours that pits are open". There is no mention about what can happen after the event ends. Since there is no stop build does your first event effectively become a new stop build? That seems an unlikely interpretation, but we want to make sure. Once the event ends can you start working on the robot normally again? If so, does that begin when the pits close for the last time?

A: Good catch! Please see [Team Update 0.1]

(<https://firstfrc.blob.core.windows.net/frc2019/2020StopBuildDayTeamUpdates/TeamUpdate0-1.pdf>). If that doesn't answer your question, please rephrase and resubmit.

(Asked by **151** at Sep 18th 19)

Q14 Q7 Follow-Up - Assembled Necessity

Q: The answer to Q7 stated "A hypothetical 2019 example would be if a VENDOR sold an assembled, bolt-on CARGO intake. Note that if a COTS item constituted a MAJOR MECHANISM, I1 prohibits its use as it was not built by the team." Is the vendor selling "assembled, bolt-on" mechanism key to the COTS mechanism violating I1? Would unassembled version of the same mechanism still be legal? Is the intention of this ruling to restrict the legality of teams' robots, or to steer FIRST COTS supplier options?

A: An unassembled version of the same MAJOR MECHANISM provided by a VENDOR would not violate any rules. The purpose of this Q&A is to address questions of interpretation of the rules for INFINITE RECHARGE. Your final question seems to be more of a 'why' question that is more suitable for a comment on the blog.

(Asked by **1712** at Sep 12th 19)

Q15 Q7 Follow-Up - Swerve Modules as Major Mechanisms

Q: The answer to Q7 stated "Yes, the assumption is that it's possible for a COTS item to also be a MAJOR MECHANISM. We are not currently aware of any currently available COTS item that would be considered a MAJOR MECHANISM." Does this suggest that the currently available individual swerve modules are not to be considered major mechanisms?

A: Individual swerve modules would not be considered MAJOR MECHANISMS.

(Asked by **1712** at Sep 12th 19)

Q16 Q7 followup - reassembly by team

Q: The answer to Q7 indicated that "an assembled, bolt-on CARGO intake" could be considered a COTS MAJOR MECHANISM. The answer also signaled that unassembled COTS kits on the market, such as the KOP drive base, are not considered COTS MAJOR MECHANISMS. If the team purchases the former, disassembles it into constituent parts such that it resembles the latter in form, and finally re-assembles it into the original COTS state, then has the team "built" the MAJOR MECHANISM per I1?

A: This question begs for a clear line (or set of lines) that define when something is built by a team (or in this case, re-built) and when it's not. The intent of !I1 is to make clear that expectation is that a team's ROBOT is the product of their work while not prohibiting *Coopertition* and help from others. If the effort described in the question is an attempt at circumventing the stated spirit of !I1, it's prohibited.

(Asked by **2363** at Sep 13th 19)

Q17 Q8 Follow Up - Fabricating and Assembling Parts

Q: In response to the answer in Q8: If Team A designs a MECHANISM, and provides stock material and COTS parts to Team B at an event with instructions on how to fabricate and assemble the MECHANISM, would this be interpreted as an attempt to exploit loopholes in I1?

A: A team accepting and using a MECHANISM from another team, assembled or not, is not a violation of !I1. !I1 governs who is required to have built the ROBOT and its MAJOR MECHANISMS, not who must have built its MECHANISMS.

(Asked by **1678** at Sep 19th 19)

Q18 Percentage of Work regarding I1

Q: If a TEAM A and TEAM B work together on a MECHANISM for TEAM B's ROBOT, what percentage of DESIGNING, FABRICATING and ASSEMBLING and sourcing of MATERIALS needs to be done by TEAM B to not be interpreted as an attempt to exploit loopholes in I1? If TEAM B provides 50% of the DESIGN, 100% of the FABRICATION, 100% of the ASSEMBLY, and 50% of the MATERIALS, would this be interpreted as an attempt to exploit loopholes in I1?

A: The definition of "built by the FIRST Robotics Competition team" is intentionally left vague in !I1. Applying percentages to "work done" infers that there is a definitive measurement that can be made based on weight, volume, part count, hours worked, etc. We believe !Q1 provides a comparable example and an answer to your question.

(Asked by 1678 at Sep 13th 19)

Q19 Honest Assessment by TEAM B

Q: If a MAJOR MECHANISM on TEAM B's ROBOT's compliance with I1 is brought into question, and TEAM B's "honest assessment of whether they built the MAJOR MECHANISMS of their ROBOT" determines that, in TEAM B's honest assessment, they built the MAJOR MECHANISM, can an EVENT OFFICIAL (LRI, Head Ref, etc) determine that TEAM B is being dishonest regarding the MAJOR MECHANISM, and is in violation of I1?

A: LRI's will be trained to handle !I1 similar to many of the previous bag rules which were also based on the honor system. The default will be to trust the team. If something seems suspicious (e.g. a MAJOR MECHANISM that appears at a re-inspection looks exactly like one on another ROBOT at the event) or there is other reason to believe !I1 may have been violated (e.g. a credible report to the LRI that a team received a MAJOR MECHANISM from another team) the LRI may investigate the matter by asking the team some questions and consulting other individuals at the event as necessary. If they come to the conclusion, beyond reasonable doubt, that !I1 has been violated, they will work with the team (with guidance from HQ as appropriate) on how to proceed with getting the ROBOT inspected.

(Asked by 1678 at Sep 13th 19)

Q20 I1 and "mostly complete"

Q: Regarding the second example of exploitation of I1, what constitutes "mostly complete"? The dictionary definition of mostly is "as regards the greater part or number". That would indicate that less than 50% of the parts used can be gifted. Is this the interpretation we should use when reading this rule?

A: No, referring to a strict percentage in this way implies that this is a black and white measurement that can be made by weight, volume, or part count. If a team designs and fabricates the parts of a MAJOR MECHANISM with the intent of having a different team use it, the recipient team risks violating !I1. To paraphrase part of a response given in !Q16, if there's an attempt to circumvent the stated spirit of !I1, it's prohibited. For example, Team B is helping Team A with A's MAJOR MECHANISM, and B realizes they have a spare custom sheet metal bracket that could be adapted to A's MECHANISM. B offers the bracket to Team A, and A agrees to use it. They work together to install it. In this scenario, it's likely that neither team is trying to figure out how to "sell" it (to themselves, to Inspectors) that Team A really did build their MAJOR MECHANISM. On the other hand, consider a scenario where B designs a MAJOR MECHANISM with specific, ubiquitous COTS parts in mind and puts it together, leaving out enough of those COTS parts such that they think that !I1 wouldn't be invoked. Team A completes the MECHANISM as instructed and uses it, even though they know the MAJOR MECHANISM was received mostly complete. This latter example is an example of an attempt to exploit !I1, and not in the spirit of the *FIRST* Robotics Competition.

(Asked by **1678** at Sep 30th 19)

Q21 Code and MAJOR MECHANISMS

Q: Are MAJOR MECHANISMS only physical robot components or does I1 also prohibit teams from sharing pre-built code? Would Team A programming a vision system or autonomous routine for Team B constitute a violation of I1?

A: MAJOR MECHANISMS are only physical robot components. No rules prohibit Team A from writing code for Team B. We would encourage Team A to work collaboratively with Team B to help Team B's growth, but this is not a requirement under the rules.

(Asked by **1678** at Sep 13th 19)

Q22 I3 and the 150 pound limit

Q: Do all mechanisms brought to an event need to be inspected according to I3? Or can the team choose to leave spare or unused mechanisms in their pit un-inspected so long as they aren't added to the robot without re-inspection? In other words, does the 150 pound limit apply to all non-COTS parts and assemblies brought to competition (like the withholding allowance in previous years) or only those on the robot to be used in matches?

A: The weight limit in I3 only applies to items submitted for Inspection.

(Asked by **1678** at Sep 13th 19)

Q23 TEAM A and TEAM B Building Together

Q: The answer to Q19 includes "If something seems suspicious (e.g. a MAJOR MECHANISM that appears at a re-inspection looks exactly like one on another ROBOT at the event)..." If TEAM A and TEAM B work in the same school facility, build practically identical robots together for the duration of the season, and both TEAM A and TEAM B honestly assess that they built their ROBOT and MAJOR MECHANISMS, is this a violation of I1?

A: No, there are certainly collaboration scenarios that may result in identical MAJOR MECHANISMS on multiple ROBOTS (or even entire identical ROBOTS) where both teams can reasonably assess that they built their ROBOT.

(Asked by **1678** at Sep 13th 19)

Q24 TEAM C Providing a Credible Report

Q: Q19's answer notes "there is other reason to believe I1 may have been violated (e.g. a credible report to the LRI that a team received a MAJOR MECHANISM from another team) the LRI may investigate the matter." If TEAM C witnesses TEAM B receiving a MAJOR MECHANISM from TEAM A, may TEAM C deliver a "credible report" to the LRI if TEAM C believes that I1 has been violated by TEAM B?

A: Yes, it is possible for a credible report to come from another team.

(Asked by **1678** at Sep 13th 19)

Q25 One or two MAJOR MECHANISMS

Q: Can you clarify the difference between two MAJOR MECHANISMS and a single MAJOR MECHANISM comprised of multiple MECHANISMS. For example, a robot grabs a game piece off the floor with an intake deployed by a pneumatic linkage. The pneumatic linkage does not interact with the game piece, but it enables the intake to do so; the intake cannot pick up a game piece without having the pneumatic linkage to deploy it. In this scenario, are the intake and pneumatic linkage individually MAJOR MECHANISMS?

A: The distinction of what constitutes a MAJOR MECHANISM is highly dependent on the game and particular ROBOT design. The LRI at each event has the authority to determine what constitutes a MAJOR MECHANISM and will work with the team in doing so.

(Asked by **5987** at Sep 23rd 19)

Q26 R5 Exceptions

Q: Regarding I3, can we assume that the exceptions from R5 that also apply to I3 will be the same as those from R5 in 2019? If not, do those exceptions include bumpers and battery?

A: Yes, the exceptions to !R5 are unchanged from 2019.

(Asked by **5987** at Sep 16th 19)

Q27 What Makes a Credible Report?

Q: Q19 says, "If...there is other reason to believe I1 may have been violated (e.g. a credible report to the LRI that a team received a MAJOR MECHANISM from another team) the LRI may investigate the matter..." Are there minimum criteria for a credible report? Do pictures/video of one team working on another team's robot qualify? Can you give an example of evidence that would qualify? If these reports come after playing matches with the illegal mechanism, could the team see retroactive penalties?

A: Reporting circumstances vary so widely it's not possible for us to give minimum criteria for credibility. However, it's accurate to say the more evidence presented (such as multiple witnesses and a MAJOR MECHANISM suddenly appearing on a team's ROBOT in the Playoff MATCHES) the more credible the report will be, and the more likely an LRI is to investigate. If a team is in violation of an inspection rule, and that violation is not discovered until after a match is played in an illegal configuration, retroactive penalties could be assessed. In this situation, the LRI will consult with the Head REFEREE, and *FIRST* HQ as necessary, to determine the appropriate penalty. As this situation could have a significant impact on the team and possibly the ALLIANCE, teams are encouraged to consult with the LRI in advance if they are unsure if their activities violate inspection rules.

(Asked by **5987** at Sep 20th 19)

Q28 Definition of a Competition Team

Q: Please define specifically what makes up a FRC Competition Team. Obviously it includes the students and mentors. How about the team sponsor and the team sponsor's engineers and the sponsors manufacturing facility personnel?

A: We do not explicitly define who may be considered members of a *FIRST* Robotics Competition team, however, similar to the use of "built", teams must make an honest assessment about who constitutes their team (i.e. members of other teams or VENDORS who have no relationship with a team outside of a traditional purchase/sale relationship are likely not team members). There is some language in the Blue Box of [2019 R14] (<https://firstfrc.blob.core.windows.net/frc2019/Manual/2019FRCGameSeasonManual.pdf>) you may also find

helpful (starting with "It is in the best interests").

(Asked by **3627** at Sep 18th 19)

Q29 Ey Exceptions

Q: If a team is queued for a MATCH or Practice Field, can they produce FABRICATED ITEMS anywhere they like within the event venue? (i.e., in the stands, in the queue, on the Practice Field, etc.)

A: Per Ey part C, a team is permitted to produce FABRICATED ITEMS in the queue or practice field only while they are queued or on the practice field. The other locations, as stated in A,B, D, and E, are the only other locations a team may produce FABRICATED ITEMS while at an event.

(Asked by **4611** at Sep 18th 19)

Q30 Ey "Event Venue" Wording

Q: Ey says "At the event venue, teams may only produce FABRICATED ITEMS as follows:". Provided that the pits are open by R16, can teams produce FABRICATED ITEMS outside of the event venue?

A: Provided that the team is working at an acceptable time per R16, there are no rules preventing a team from producing FABRICATED ITEMS in a location outside of the event venue. Teams should note that FABRICATED ITEMS produced at this time would likely be subject to rule Ex if they try to bring these items in to the event.

(Asked by **4611** at Sep 18th 19)

Q31 modifying a robot between competitions

Q: As the Stop-build day disappears, we can assume that the bag has disappeared. Therefore is there any rule preventing a team to build, modify, their robot between competitions? or is there a limited amount of alteration allowed (obviously will have to be an honor system, but the respect of bag day was also such an honor system). I am thinking of teams scouting week 1 competition (in person or online) and duplicating what they saw on their own robot, without physical limitation.

A: There is no limitation on changes made to the ROBOT between events.

(Asked by **4913** at Sep 20th 19)

Q32 Follow up to Q8 & Q17

Q: In response to the answers in Q8 & Q17: If Team A designs a MAJOR MECHANISM, and provides stock material and COTS parts to Team B at an event with instructions on how to fabricate and assemble the MAJOR MECHANISM, and Team B goes on to fabricate, assemble, and use said MAJOR MECHANISM on their ROBOT, would this be a violation of I1?

A: This is not necessarily a violation of I1. I1 has been intentionally kept vague for many reasons. In this scenario, if Team B believes they built their ROBOT and they have passed Inspection, which includes signing the Inspection Sheet with the new language included (i.e, the Team is agreeing they built their ROBOT), then this would not be considered a violation of I1.

(Asked by **1114** at Sep 23rd 19)

Q33 Typo in rule Ex

Q: Not a question, but a typo in rule Ex: "...that may be brought into the venue to during the designated..." The word "to" should be removed.

A: Great catch! Please see [Team Update 0.2]

(<https://firstfrc.blob.core.windows.net/frc2019/2020StopBuildDayTeamUpdates/TeamUpdate0-2.pdf>).

(Asked by **857** at Sep 25th 19)

Q34 Alliance Red Card from Retroactive I1 Violation

Q: In Q27 it was ruled that retroactive penalties could be assessed for a team that the LRI decides has played in matches after violating I1. If the team originally passed inspection before playing matches but the LRI later decides that at the time of their original inspection they should not have passed because of an I1 violation, could the team's alliance partners receive red cards from an I2 violation?

A: Thank you for taking the time to submit your question, however we ask that you hold on to it until the unpublished rules are released at Kickoff. We suspect your question will be answered then (as noted in the [blog] (<https://www.firstinspires.org/robotics/frc/blog/2020-rule-changes-stop-build-day>), "please note that we will only be responding to questions about the rules we are publishing today and no others"). If not, please resubmit when the Q&A reopens in January.

(Asked by **5987** at Sep 24th 19)

Q35 Can teams build 2 or more Competition Robots?

Q: Will there be an update to Rule C5? Can teams build 2 or more robots, but only enter 1 robot per event? Please see my scenario here. <https://www.chiefdelphi.com/t/how-will-no-bag-affect-day-1-of-regionals/361889/109>

A: !C5 has been updated. Please see [Team Update 0.2]

(<https://firstfrc.blob.core.windows.net/frc2019/2020StopBuildDayTeamUpdates/TeamUpdate0-2.pdf>). If this does not answer your question, please rephrase and ask again.

(Asked by **359** at Sep 25th 19)

Q36 Q6 followup - is an unpowered rolling chassis a ROBOT?

Q: Please clarify whether a robot-like assembly equipped with most of its drive base but without a battery, is a ROBOT per C5 -or- is not a ROBOT per Q6.

A: A robot-like assembly equipped with most of its drive base but without a battery would not be considered a ROBOT per !C5 or !Q6. This assembly would, however, be considered a 'Robot' per the description in !C5, and thus be restricted by this rule.

(Asked by **2363** at Sep 26th 19)

Q37 Bringing Multiple Almost-Robots

Q: With the new definition of Robot as it applies to C5, is there any reason why teams would be unable to bring to an event multiple assemblies that would otherwise be ROBOTS except for the fact that they are missing a drivetrain. What if the drivetrain frame is included but without its gearboxes, wheels, and chains/belts? In other words, is an assembled collection of MAJOR MECHANISMS without a propulsion mechanism considered a Robot for purposes of C5?

A: The blue box in !C5 explains that "an assembly whose drive base is missing all wheels/treads, gearboxes, and belts/chains is not considered a "Robot." If any of those components are incorporated, the assembly is now considered a 'Robot.'" This means that multiple assemblies that are brought into an event at the appropriate time, where all wheels/treads, gearboxes, and belts/chains are omitted from the drive base, would not be considered a ROBOT or Robot.

(Asked by **5987** at Sep 26th 19)

Q38 Q3 followup, Ex part D/E changes

Q: With the change to Ex in Team Update 0.2, would this make other team-assembled COTS parts no longer exempt? For example, a COTS swerve module, while incorporating one or more gearboxes and wheels, would not generally be considered as just an assembled gearbox or assembled wheel, and is most often shipped unassembled. There are other examples of similar COTS kits that come with assembly instructions - The AndyMark Rhino/Raptor tracks or the WCP GreyT elevator/claw would be some such examples.

A: Correct, the provided examples do not meet any of the exceptions listed in the updated Ex and must be loaded in during the load-in period.

(Asked by **2177** at Sep 26th 19)

Q39 C5 using a non "robot" on the practice field

Q: The definition provided in the blue box states "an assembly whose drive base is missing all wheels/treads, gearboxes, and belts/chains is not considered a "Robot."". Would such an assembly be permitted to be used on the practice field? If so, would such use be allowed while a team's ROBOT and drive team are in the queue or on the field, provided the practice field is open?

A: There are no rules that prohibit the use of non-ROBOTS or non-Robots on the practice field. Of course, in this and all other aspects of *FIRST* Robotics Competition, Safety and *FIRST* Core Values should be top priorities for teams.

(Asked by **2177** at Sep 26th 19)

Q40 Hosting Teams Subject to Ez

Q: In reference to Rule Ez, if event resources (ex. Machine Shop, practice field, etc.) belong to a team hosting an event, is that team still subject to all limitations outlined in Ez?

A: Please see [Team Update 0.3] (<https://firstfrc.blob.core.windows.net/frc2019/2020StopBuildDayTeamUpdates/TeamUpdate0-3.pdf>). If that doesn't answer your question, please rephrase and resubmit.

(Asked by **246** at Oct 3rd 19)

Q41 Q23 Follow Up

Q: Q23 indicates that there are "collaboration scenarios that may result in identical MAJOR MECHANISMS on multiple ROBOTS (or even entire identical ROBOTS) where both teams can reasonably assess that they built their ROBOT" If TEAM A and TEAM B collaborate on a MAJOR MECHANISM for TEAM A's ROBOT and both TEAM A and TEAM B, in their individual HONEST ASSESSMENT's, both separately BELIEVE they BUILT the MAJOR MECHANISM on TEAM A's ROBOT, is this an I1 violation?

A: It is not necessarily a violation of !I1 if more than one team believes they built the same MAJOR MECHANISM. The definition of "built by the *FIRST* Robotics Competition team" is intentionally left vague in !I1. However, if Team B feels a violation has occurred, they may speak with the LRI at the event. The LRI will work to address the situation with Team A and provide guidance for corrective action as needed. The LRIs have channels to contact *FIRST* HQ for additional assistance as appropriate.

(Asked by **1678** at Sep 30th 19)

Q42 Ez. Hosting Teams NOT competing, subject to Ez?

Q: An extension to Q40. Are hosting teams, that are NOT competing, and their school or team owned resources subject to all limitations outlined in Ez? [To put into context (a) open our machine shop for competing teams repairs - completed by our workshop staff while (b1) also using the workshop to work on the our own team's robot and (b2) it is most common for our team to use our machine shop to fix the FRC field or to manufacture missing parts for a Week #1 competition.]

A: Please see [Team Update 0.3]

(<https://firstfrc.blob.core.windows.net/frc2019/2020StopBuildDayTeamUpdates/TeamUpdate0-3.pdf>). If that doesn't answer your question, please rephrase and resubmit.

(Asked by **1885** at Oct 3rd 19)

Q43 Ex allowed materials to be brought in after load-in

Q: C11 applied to FABRICATED ITEMS, while this one applies to ROBOT or ROBOT elements. In 2019, the blue box on page 63 noted that it's possible for something to be neither COTS nor a FABRICATED ITEM. Would teams be allowed to bring in items under Ex after load-in that are neither COTS or FABRICATED ITEMS, such as the example in the blue box, "a 20 ft. (~610 cm) length of aluminum which has been cut into 5 ft. pieces by the team for storage or transport".

A: Yes, that would be considered "Raw stock" per **Ex** part B.

(Asked by **2177** at Sep 27th 19)

Q44 Non-Driving Robots

Q: With the modification to C5 in Team Update 0.2, each "team may enter only one (1) ROBOT (or 'Robot'...)." If a team designs a robot that meets the other definitions of ROBOT but does not include a drivetrain, is it a 'Robot'? Is it a ROBOT? If it is a ROBOT but not a 'Robot', can the team enter it in competition? Can they bring multiple to an event?

A: If the team designs something that meets the other definitions of ROBOT, but does not have a drivetrain (i.e., movement), then it does not meet the definition of ROBOT. As this assembly does not have a drivetrain, it would

not be considered a 'Robot' per !C5 either. !C5 only limits the number of ROBOTS or 'Robots' that a team enters in the event, and places no restriction on assemblies that do not meet either of these definitions. Assemblies that meet either definition (not necessarily both) are restricted by !C5.

(Asked by **5987** at Sep 27th 19)

Q45 Difference between assembly and "Robot"

Q: C5 defines a "Robot" as " a ROBOT-like assembly equipped with most of its drive base." It also states that if any of wheels/treads, gearboxes, or belts/chains is incorporated, the assembly is now a "Robot." Is an assembly which incorporates one of those elements in a way which is clearly not intended for movement considered a "Robot"? What if that assembly is used for movement, but is not the primary means of movement (ex. a self-righting mechanism)

A: A Robot or ROBOT that has "most of its drive base" will be considered a Robot or ROBOT per !C5. The list provided, "wheels/treads, gearboxes, and belts/chains" attempts to provide clarity to the subjective word "most", i.e. if all of the above are taken off of the drive base, the remaining assembly is no longer considered a Robot or ROBOT. Wheels/treads, gearboxes, and belts/chains that do not enable movement around the field, such as a self-righting mechanism, do not need to be removed to meet this criteria.

(Asked by **4611** at Sep 30th 19)

Q46 Follow up to Q44 - can non-ROBOT's be entered into competition?

Q: Q44 touched on some important aspects, but one part isn't clear. If a team does not include a drive train on their machine, it is not a ROBOT or a "Robot"... but is it allowed to be entered into the competition? C5 limits the number of ROBOTS that can be entered, but says nothing about entering something that is not a ROBOT (or "Robot"). Examples of this could be climbing-only machines (no drive train) in 2013 or placing only machines in 2015 (See Q&A 300 from that year).

A: !I3 requires a ROBOT to be presented for Inspection and only those ROBOTS that get inspected can participate in QUALIFICATION and PLAYOFF MATCHES. !C5 only restricts teams entering ROBOTS and Robots. Please see the updated definition of ROBOT in [Team Update 0.3] (<https://firstfrc.blob.core.windows.net/frc2019/2020StopBuildDayTeamUpdates/TeamUpdate0-3.pdf>).

(Asked by **2177** at Oct 3rd 19)

Q47 Q32 Follow Up - Nature of Belief

Q: Q32 states "if Team B believes they built their ROBOT and they have passed Inspection, which includes signing the Inspection Sheet with the new language included (i.e, the Team is agreeing they built their ROBOT), then this would not be considered a violation of I1." Of the members of Team B, what qualifies as "Team B believes"? Does only the mentor and student who sign the Inspection Sheet need to believe? Does the entire team need to believe? What if one member of Team B does not believe?

A: Functionally, the two people who are signing the Inspection Document are one mentor and the team captain and the intent of these signatures is to represent consensus of the team. How teams come to the consensus of whether they built the ROBOT is left to the team. In general, a small subset of the team believing one way or the other will likely not affect compliance with !I1.

(Asked by **1678** at Sep 30th 19)

Q48 Is a MAJOR MECHANISM considered a MECHANISM?

Q: I1 defines MAJOR MECHANISM and I4 lists exceptions for ROBOT re-inspection, would a MAJOR MECHANISM fall into the category of MECHANISM for the purposes of E and F? In other words, is MECHANISM a superset of MAJOR MECHANISM?

A: Yes, ****all** MAJOR MECHANISM**S** ~is a superset of~ **are** MECHANISM**S**.** *(edited 10/4/19)*

(Asked by **900** at Oct 1st 19)

Q49 Q48 followup - MECHANISM : MAJOR MECHANISM :: duck : waterfowl ?

Q: Can you please clarify what is meant by "MAJOR MECHANISM is a superset of MECHANISM"?

A: Apologies; !Q48 has been corrected. MAJOR MECHANISM : MECHANISM :: duck : waterfowl (as in all MAJOR MECHANISMS are MECHANISMS, but not all MECHANISMS are MAJOR MECHANISMS).

(Asked by **2363** at Oct 4th 19)

Q50 Follow up to Q46

Q: With the updated definition of ROBOT in Team Update 0.3, what constitutes "movement about the field"? Would a machine designed to move in only one dimension (for example, climbing upwards with no drivetrain to enable horizontal movement about the field) meet this definition? Would a robot that's designed to be completely stationary, but produce controlled movement of game pieces meet this definition (For example, a stationary conveyor)?

A: Movement about the field means movement horizontally about the field. A machine with no drivetrain enabling horizontal movement or only capable of producing controlled movement of game pieces would not meet the definition of ROBOT.

(Asked by **2177** at Oct 4th 19)

Q51 IMU Exemptions

Q: Per R11, Section C, Subsection i, Intertial Measurement Units are specific exempt items from the calculated total cost of all items on the ROBOT. In the case of a device, such as the WCP Spartan Sensor Board with Gyro (used for example only), that contains an integrated IMU and meets the additional constraints of R12, would the item's cost be exempt from the total cost of all items on the ROBOT?

A: Generally, provided the device includes IMU or Inertial Measurement Device in its description, the exception listed !R11-C-i applies. Also, we recommend you see the updated version of !R11-C-i in the most recent version of the [2020 PreKickoff Game Manual Content](<https://frc-qa.firstinspires.org/manual>) document.

(Asked by **900** at Nov 19th 19)

Q52 Falcon 500 Replacement Shafts

Q: Would any replacement shaft for the Falcon 500, purchased from any vendor or made by the team, be legal?

A: This question is about a rule which is not part of the pre-kickoff rules release. If you still have a question after reading the 2020 Game Manual released at Kickoff, please re-submit.

(Asked by **401** at Nov 11th 19)

Q53 Analog Devices ADIS16448 IMU cost accounting

Q: How are the Analog Devices ADIS16448 IMU's going to be treated this year? The retail cost is >\$500 each, but they were legally available for several years from FIRST Choice. With the 2019 cost accounting rules changes, they were allowed, but they were required to be listed on the CAW at \$500. With the changes for 2020, will they be allowed and exempt from cost accounting under Rx.C.i (i.e. consider them to have a sponsored FIRST price <=\$500), or will they not be legal this year?

A: Please see the first sentence of the Blue Box below !R12.

(Asked by **4020** at Nov 11th 19)

Q54 Custom "Identical Functional Replacement"

Q: The blue box under R11 defines "identical functional replacement." Does this refer only to COTS parts that meet the definition or also fabricated parts? For example, let's say the KoP includes a gearbox plate. If I fabricate a duplicate of that plate with the same pattern of holes using similar raw material would that be considered an "identical functional replacement"? Or does this only apply if I purchase a different COTS product that meets the definition?

A: There are no rules or restrictions requiring the "identical functional replacement" detailed in !R11-B (with clarification in the Blue Box) to be a COTS item. A FABRICATED identical functional replacement would meet the description.

(Asked by **5987** at Nov 11th 19)

Q55 "Identical Functional Replacement" Clarification

Q: R11-B states that items from the current year's KoP are exempt from the BOM and \$5000 limit, and that "identical functional replacements may be used to meet this criterion." Does this last clause also apply to R11-A? For example, I purchase a bearing not included in the KoP for \$7 from my local hardware store. I see that a bearing with the same specifications is sold by a VENDOR online for \$4. Is the bearing I purchased exempt from the BOM and \$5000 limit, or must it be included?

A: The "identical functional replacement" clause applies only to !R11-B. If the bearings are identical, this would meet the qualification for !R11-A as it is less than \$5 as purchasable from a VENDOR. !R11-A dictates that the part is purchasable from a VENDOR for that price, it does not specify that the part that was used on the ROBOT was purchased for that price.

(Asked by **5987** at Nov 12th 19)

Q56 Drive Base Kit Opt out cost accounting

Q: For teams that opt out of the drive base kit and instead receive the AM voucher, do the items in the drive base kit at the quantities provided in the drive base kit qualify as part of the KOP cost exception (R11.B.) or do they only qualify as KOP items for teams that opt to receive the drive base kit? Is there a preferred method for teams to verify to inspectors which choice they made if that is necessary for inspection?

A: Good question! See the updated [2020 PreKickoff Game Manual Content](<https://frc-qa.firstinspires.org/manual>) document. We believe the edits address your question, but if not, please rephrase and resubmit.

(Asked by **3847** at Nov 19th 19)

Q57 Items purchased with PDV, given to another team

Q: The definition for KOP item includes "paid for completely (except shipping) with a Product Donation Voucher (PDV) from the current season." How should teams account for the cost of an item that is purchased using a PDV by another team and then given to their team? Would this still fall under the exception since it was purchased with a "PDV from the current season"?

A: Good question! See the updated [2020 PreKickoff Game Manual Content](<https://frc-qa.firstinspires.org/manual>) document. We believe the edits address your question, but if not, please rephrase and resubmit.

(Asked by **3847** at Nov 19th 19)

Q58 Limitations of R14.D.iii

Q: What are the limits of "motor shafts modified" as part of R14.D.iii, specifically with regards to removing or replacing material? Examples: Cutting a shaft to be shorter, but with the same cross section. Cutting a shaft to have a different cross section (round to hex, adding a keyway etc). Replacing the shaft with a duplicate part. Replacing the shaft with a purchased alternate part. Replacing the shaft with a published alternate part made by the team.

A: There are no limitations specified in R14 regarding how the motor shaft may be modified. Note that this rule only specifies allowable modifications prior to Kickoff and other rules impose additional restrictions on allowable modifications.

(Asked by **4682** at Nov 11th 19)

Q59 Scope of allowable manufacturer-specified pre-kickoff mods to COTS components

Q: R14.E.ii allows "assembly" of COTS components "per manufacturer specs" prior to kickoff. Would other activities such as (a) repair, (b) configuration changes, and (c) replacement of user-replaceable components be considered "assembly" if these activities are performed in accordance with manufacturer instructions? [Followup to Q52. Related to Q58.]

A: As long as all other rules are followed, these activities would be considered "assembly per manufacturer specs".

(Asked by **2363** at Nov 12th 19)

Q60 Items purchased in qty

Q: If an item is purchased in a qty greater than 1, say a package of 100 bolts for \$6 or a pack of 4 of something for \$19.99. Do these complete packs need to be listed on the BOM at their total price or can we account for them at \$0 since each individual item costs less than \$5 and would fall under the exception.

A: A reasonable (and legal) way to assess the FMV of a single widget (e.g. bolt) when purchased as part of a larger quantity is to divide the total cost by the quantity purchased. If that value is less than \$5, then it doesn't need to be valued on the BOM per !R11-A.

(Asked by **3847** at Nov 19th 19)

Q61 KOP value parity for teams accepting additional game pieces with KOP shipment

Q: Some international teams face delays and high shipping costs for game pieces post-Kickoff and are offered additional game pieces with KOP shipment at a cost of 50% FIRST Choice credits. This is great however it will negatively affect Robot Cost Accounting for these teams because they now have several hundred dollars less of \$0 items on the CAW. **Q:** Is this considered a choice teams need to make? Timely and cost effective access to game pieces -OR- Parity with other teams for Robot Cost Accounting

A: The purpose of this Q&A is to help provide clarity for the pre-Kickoff rules content in the recent FRC Blog. We perceive this question as an inquiry about the effect on equity/parity across teams, and that the meaning of the rule is clear. For suggestions or to express concerns about the implication of a rule, please e-mail firstroboticscompetition@firstinspires.org.

(Asked by **7498** at Nov 12th 19)

Q62 Regarding R15 - using previous robot designs.

Q: Can a team use a robot design such as an elevator design from one of their previous robots if they have not publicly published the CAD and coding files? (Built from scratch – not using previous parts) Is the answer different if the team makes some minor design revisions such as the type of rollers used or the method of attachment to the robot or the height to which it must travel? If CAD files are required to be published, must the code to actuate the elevator be published also?

A: Teams may not reuse a ROBOT design from a previous year's ROBOT if source files are not publicly released per !R15. Example 1 in the blue box of !R15 provides an example similar to your first scenario. Minor design changes do not exempt a design from being subject to !R15. Example 2 in the blue box gives an example similar to this scenario. The code is subject to !R15 if the team intends to reuse it. If the team only intends to reuse the mechanical design, software does not need to be released.

(Asked by **3737** at Nov 12th 19)

Q63 Is "as purchasable from a vendor" a general principle when determining FMV?

Q: Should the criterion "as purchasable from a vendor" always be used when establishing the FMV of a component for the purposes of meeting Budget Constraints & Fabrication Schedule rules?

A: We believe this question will be answered when the full manual is published at Kickoff. If that's not the case, please rephrase and resubmit.

(Asked by **2363** at Nov 12th 19)

Q64 Cost accounting rule clarification?

Q: In the cost accounting exceptions statement (for R11), do you mean 'OR' at the end of bullet (a) on Robot Cost Accounting instead of 'AND'? As written, it seems a part must be less than \$5 AND also must be in this year's KOP to be excluded from the cost accounting. Basically it says (a) AND (b), rather than (a) OR (b). Subpart (c) referring to specific exempt items has no conjunction or logical operator so might be construed to be either AND or OR.

A: The use of "and" in this context is correct, as it is a list of multiple exceptions to the rule, i.e. "exceptions include a, b, and c". Please see the updated [2020 PreKickoff Game Manual Content](https://frc-qa.firstinspires.org/manual) document which moves the "and" from item "a" to item "b".

(Asked by **1967** at Nov 19th 19)

Q65 Sale Cost on BOM

Q: If a COTS item goes on sale, can teams list the sale price as the cost of the item on the BOM? Assume the sale is run by a VENDOR and available to all teams. Does it make a difference if the team actually purchased the item while on sale? What if the sale is ongoing (i.e. the VENDOR raises the price of the item then constantly leaves it on "sale" to entice buyers)? What if the sale ended before kickoff?

A: This question is about a rule which is not part of the pre-kickoff rules release. If you still have a question after reading the 2020 Game Manual released at Kickoff, please re-submit.

(Asked by **5987** at Nov 25th 19)

Q66 Follow up to Q60 - FMV for parts avliable with qty discounts

Q: If an item is sold for \$14 for one item and also sold for \$10 each if you purchase 10 or more of them. Which price should a team lists if they have QTY 1 on their robot? QTY 10 on their robot? Do the prices change based on what the team actually purchased? Such as if they only purchased 1, or if they bought 10 but in two purchases of 5 so didn't actually receive the discount, or if they purchased 15 and were able to use the discount.

A: This question is about a rule which is not part of the pre-kickoff rules release. If you still have a question after reading the 2020 Game Manual released at Kickoff, please re-submit.

(Asked by **3847** at Nov 25th 19)

Q67 Reading Q60 through the lens of Q55

Q: A COTS widget is available for sale from a VENDOR in a bulk quantity N and unit price p (and extended price $P = p \cdot N$). It is always reasonable and legal to assess the FMV of the widget as exactly equal to the unit price p, or can you foresee situations where this would not be reasonable or legal?

A: This question is about a rule which is not part of the pre-kickoff rules release. If you still have a question after reading the 2020 Game Manual released at Kickoff, please re-submit.

(Asked by **2363** at Nov 25th 19)

Q68 Purchased completely with a voucher

Q: If a team purchases multiple items at the same time from a vendor that has a voucher. If the voucher doesn't cover the entire cost of the items purchased, can the team choose which items purchased during that transaction count as being purchased entirely with the voucher or do none of the items count as being completely purchased using a voucher?

A: When a team makes a purchase of a value over the value of the voucher being used, they may account for whichever set of items in the order that is within the voucher value as being "paid for completely (except shipping) with the team's Product Donation Voucher" that they desire. There is no requirement that the team breaks up orders into voucher and non-voucher purchases to be able to designate items purchased as part of the team's KOP.

(Asked by **3847** at Nov 25th 19)

Q69 COTS components with complicated parts

Q: Prior to kickoff, a COTS widget is modified in a manner not reasonably accomplished in fewer than 30 minutes using handheld tools. Following kickoff, the same COTS part is further modified (subtractively machined) such that no aspects of the prior complex modification are still present within the component. Is the component legal per R14 if the past work is blown away by the new work which is accomplished during the current season?

A: Answering this question requires the full definition of FABRICATED ITEMS which is not part of the Pre-Kickoff Rules release. If you still have a question after reading the 2020 Game Manual released at Kickoff, please re-submit.

(Asked by **2363** at Nov 25th 19)

Q70 Follow Up to Q55 and the definition of "identical"

Q: In your answer to Q55 you state that "The "identical functional replacement" clause applies only to R11-B" and then continue to say that "If the bearings are identical". How should we be defining "identical" in this context and in other cases of determining an item's status in R11A and in determining the Fair Market Value of an item? Is it more strict than the "identical functional replacement" definition used in R11-B? Is it similar? Is it less strict?

A: This question is about a rule which is not part of the pre-kickoff rules release. If you still have a question after reading the 2020 Game Manual released at Kickoff, please re-submit.

(Asked by **3847** at Nov 25th 19)

Q71 R15 and Generative Software

Q: Per R15, software created prior to kickoff must be released to be used in the 2020 season. In some cases, software tools and inputs are used to generate code or data deployed to the robot. For various reasons, these tools and/or input data might be stored and run separately from robot software. Per R15, is it sufficient for a team to release only the final dataset and/or source code deployed to the robot? Should they also release the software tools and input data used to generate the robot code?

A: !R15 only applies to software used on the ROBOT. A team only needs to release the final dataset or source code from a previous season if they expect/intend to use that dataset or source code again. Having said that, we strongly encourage teams to publish tools they may be using to generate source code or other robot data files in order to allow other teams to learn from them.

(Asked by **900** at Nov 26th 19)

Q72 R12 and Software Costs

Q: Team A wishes to use experimental robot control software which has a yearly licensing cost of \$10,000. They write a letter to solicit sponsorship from the company producing that software and receive the software as a donation for their team. The software is then used in part to control the robot on the field, would Team A be in compliance with R12 given that the software is not a KOP item and has a purchase cost above \$500?

A: Please see this [Team Update](<https://firstfrc.blob.core.windows.net/frc2019/PreKickoffRuleChanges.pdf>). With this update, the use of this software on the ROBOT would violate !R12.

(Asked by **900** at Dec 6th 19)

Q73 Is the Operator Console to be cost accounted?

Q: Is the OPERATOR CONSOLE considered part of the ROBOT for the purposes of R11 and other cost accounting rules?

A: The answer to this question is included in content that will be published at Kickoff. If you still have this question at that time, please rephrase and resubmit.

(Asked by **2363** at Dec 2nd 19)

Q74 Cost Accounting and Taxes/Tariffs

Q: In the case of Cost Accounting, please clarify how taxes, tariffs, customs duties, and import fees should be accounted for when determining the total cost of the robot, the individual part costs, and the exempt part costs. In recent times, many part costs have gone up due to tariffs and some importers are noting the increases as line items, should part costs be accounted for with those or not?

A: This question is about a rule which is not part of the pre-kickoff rules release. If you still have a question after reading the 2020 Game Manual released at Kickoff, please re-submit.

(Asked by **900** at Dec 3rd 19)

Q75 R11.C - Rockwell Automation Sensors

Q: We have a collection of Rockwell Automation Sensors that might have been available in FIRST Choice but are uncertain if they were included. Is there a complete list of the sensors that qualify for this exemption that we can reference to determine if our sensors are exempt?

A: Unfortunately, no such official consolidated list is available. Teams will need to do their own research on what has been available in *FIRST* Choice in prior seasons.

(Asked by **900** at Dec 3rd 19)

Q76 R12 Blue Box - ADIS16448 Cost for BOM

Q: In the case of the blue box for R12, the ADIS16448 sensor is explicitly listed as a legal sensor that falls under the maximum cost list but there is no published fair market value listed for that sensor. If, in the 2020 season, we wish to use an ADIS16448 on our robot, how do we account for the cost of this sensor on our Bill of Materials?

A: The ADIS16448 is an IMU and can be accounted at \$0 per the exemption in !R11-C-i.

(Asked by 900 at Dec 3rd 19)

Q77 Q76 Clarification

Q: As further clarification for your answer to Q76, the implication is that if a team were to use multiple ADIS16448 sensors, they would be in violation of R11-C -i, which states that only "one (1)" IMU may be exempted. Is this correct? Or would all ADIS16448 used on a robot have an exempt cost of \$0?

A: Yes, using multiple ADIS16448 MXP Breakouts on the ROBOT is not possible because there is no available Fair Market Value to account for them.

(Asked by 900 at Dec 4th 19)

Q78 Team Captain

Q: Per Rule 4 in the Stop Build Day rules, can you clarify who should sign the attestation form in the event that a team captain or team mentor is not available at the time of inspection? What should be done for a team that does not have an official team captain? Is team captain a recognized position that all teams should have?

A: It is up to each individual team to choose how they designate their Team Captain(s) for the purposes of signing the Inspection form. The form requires the signature of both a Team Mentor and Team Captain and extreme circumstances where the appropriate individuals are not available will be handled on a case-by-case basis by the LRI, with assistance from *FIRST* HQ if necessary.

(Asked by 900 at Dec 4th 19)

Q79 Individual Part Costs Greater than Kit Costs

Q: In the blue box for R11, a summary is provided that says that a team must use the cost of a Kit and not its component pieces. If a vendor is out of stock on a kit but is selling individual items that each have a cost greater than \$500 though the kit itself is normally sold for less than \$500, would these parts be legal for a team to use?

A: !R11 contains no such summary, it appears you are referring to !R12. The referenced text in the !R12 Blue Box indicates that the cost of a system/kit must be used if the items are "designed to assemble into a single configuration, and the assembly is functional in only that configuration". In the presented scenario, either the Team already has the rest of the kit from a previous time when it was an available COTS item, which they can use (including any replacement parts purchased, regardless of their cost) and cost at the original cost of the kit, or the individual items of the kit are usable without the complete kit in which case the !R12 Blue Box text does not apply.

(Asked by 900 at Dec 4th 19)

Q80 Un-Depreciated Cost

Q: Please clarify what is meant by "un-depreciated cost" in the blue box for R11. How is the "un-depreciated cost" to be evaluated as compared to a "depreciated cost" given that no depreciation schedule has been provided to

teams?

A: The un-depreciated cost of an item is the cost original cost with no depreciation applied (i.e. as if it were brand new). No depreciation schedule is needed to determine an un-depreciated cost.

(Asked by **900** at Dec 4th 19)

Q81 Rookie Wildlist

Q: We are a Rookie Team from Turkey, #8079. There are only two Regionals in Turkey, 30 Rookie Teams per regional. Compared to other international Regionals this high attendance give very less chance for a Rookie to attend to World Championship. We have so much willing and effort to experience the Championship. Under these conditions our expectation is to support Rookies to benefit the Wildcard or enable more than one Rookie All Star Award in these Regionals to be fairer. What do you think?

A: This question is not related to the pre-kickoff rules release and seems to be a suggestion rather than a rules-related question we would answer in this Q&A. Please send suggestions like this in an email to FIRSTRoboticsCompetition@firstinspires.org.

(Asked by **8079** at Dec 4th 19)

Q82 Pre-Kickoff rules and Blue Boxes

Q: In past years, there has been a rule which states that language in blue boxes does not carry the same weight as the actual rule. Since blue boxes are present and seem to be working in addition to many of the rules, providing definitions and additions that aren't in the preceding rules with these pre-releases, do blue boxes now carry the same weight as the actual rules that precede them and what should take precedence in the event of a conflict? It is possible this rule is just not available yet.

A: Please read the manual in its entirety after kickoff. If you still have questions afterward about the interpretation of blue boxes in general, or about the blue box of a specific rule, please resubmit.

(Asked by **900** at Dec 5th 19)

Q83 Preparation to display a Bill of Material?

Q: Per the Blue Box for R11, the language says that "teams must be prepared to display a Bill of Material (BOM) to Inspectors during Inspection". Is it optional for an inspector to request the bill of materials be displayed? Is it sufficient for teams to only "be prepared" to display it? The text references rule Ixx, which is not available yet so it is possible this is answered in that rule.

A: Please read the manual in its entirety after kickoff. If you still have this question, please resubmit.

(Asked by **900** at Dec 5th 19)

Q84 Thank you and Happy Holidays!

Q: Team A wishes to thank the anonymous FIRST staff members answering the Q&A but lacks any method to get in touch with them and express their gratitude directly. Would Team A using the Q&A system to thank those staff members for releasing portions of the manual early as well as generously taking their time to answer all of Team A's questions and wish those staff members to have a wonderful and peaceful holiday season constitute an

acceptable use of the Q&A system?

A: We are appreciative of our community's patience and thoughtfulness. And we are SO excited for Kickoff! Less than a month left!!!

(Asked by **900** at Dec 5th 19)