

7 Game Rules (G)

7.1 Personal Safety

G101 ***Humans, stay off the FIELD until green.** A team member may only enter the FIELD if FIELD lighting (FIELD facing side of the team signs and timers) is green, unless explicitly instructed by a REFEREE or an FTA.

Violation: VERBAL WARNING. YELLOW CARD if subsequent violations during the event.

Violations of this rule apply to the entire team, not specifically to any 1 individual. For example, a member of Team 9999 enters the FIELD prior to lights going green after MATCH 3, and a different member enters the FIELD prior to lights going green after MATCH 25. The team receives a VERBAL WARNING for the first violation and a YELLOW CARD for the second.

G102 ***Never step over the guardrail.** A team member may only enter or exit the FIELD through open gates.

Violation: VERBAL WARNING. YELLOW CARD if subsequent violations during the event.

Teams are encouraged to ensure that all members of their DRIVE TEAM are aware of this rule. It's easy to violate, particularly when teams are doing their best to move on and off the FIELD quickly. The violations of this rule are intended to avoid nuisance penalties, but still enforce safety requirements around the FIELD. There is the potential for injury when stepping over the guardrail.

Violations of this rule apply to the entire team, not specifically to any 1 individual. For example, a member of Team 9999 steps over the guardrail prior to MATCH 3, and a different member steps over the guardrail prior to MATCH 25. The team receives a VERBAL WARNING for the first violation and a YELLOW CARD for the second.

G103 ***Be careful what you interact with.** A team member is prohibited from the following actions with regards to interaction with ARENA elements.

- A. climbing on or inside,
- B. hanging from,
- C. manipulating such that it doesn't return to its original shape without human intervention, and
- D. damaging.

Violation: VERBAL WARNING. YELLOW CARD if subsequent violations during the event.

G104 ***Teams may not enable their ROBOTS on the FIELD.** Teams may not tether to the ROBOT while on the FIELD except in special circumstances (e.g. after Opening Ceremonies, before an immediate MATCH replay, etc.) and with the express permission from the FTA or a REFEREE.

Violation: VERBAL WARNING. YELLOW CARD if subsequent violations during the event.

Teams are encouraged to consider this rule when developing their ROBOTS. FMS will not enable ROBOTS after the conclusion of the MATCH. For the purposes of this rule, tethering includes any wired or wireless connection used to electrically energize and/or control elements on the ROBOT. The safety of teams and volunteers in close proximity to ROBOTS and ARENA elements on

the FIELD is of the utmost importance, therefore ROBOTS or ROBOT COMPONENTS may not be enabled in any way on the FIELD before or after the MATCH.

ROBOTS need to be safely transported off the FIELD and back to the pits after the MATCH, and there may be bystanders, doorways, or height restrictions along the route.

7.2 Conduct

G201 *Be a good person. All teams must be civil toward everyone and respectful of team and event equipment while at a FIRST Robotics Competition event.

Violation: VERBAL WARNING. YELLOW CARD if subsequent violations during the event.

Examples of inappropriate behavior include, but are not limited to, the use of offensive language or other uncivil conduct.

Examples of particularly contemptible behavior that is likely to result in ARENA ejection include, but are not limited to, the following:

- A. assault, e.g. throwing something that hits another person (even if unintended),
- B. threat, e.g. saying something like “if you don’t reverse that call, I’ll make you regret it,”
- C. harassment, e.g. badgering someone with no new information after a decision’s been made or a question’s been answered,
- D. bullying, e.g. using body or verbal language to cause another person to feel inadequate,
- E. insulting, e.g. telling someone they don’t deserve to be on a DRIVE TEAM,
- F. swearing at another person (versus swearing under one’s breath or at oneself), and
- G. yelling at another person(s) in anger or frustration.

G202 *Don’t bang on the glass. A team member may never strike or hit the DRIVER STATION plastic windows.

Violation: VERBAL WARNING. YELLOW CARD if subsequent violations during the event.

G203 *Asking other teams to throw a MATCH – not cool. A team may not encourage an ALLIANCE of which it is not a member to play beneath its ability.

Note: This rule is not intended to prevent an ALLIANCE from planning and/or executing its own strategy in a specific MATCH in which all the teams are members of the ALLIANCE.

Violation: VERBAL WARNING. RED CARD if subsequent violations during the event.

Example 1: A MATCH is being played by Teams A, B, and C, in which Team C is encouraged by Team D to not get on a CAGE at the end of the MATCH, resulting in Teams A, B, and C not earning a Ranking Point. Team D’s motivation for this behavior is to prevent Team A from rising in the Tournament rankings and negatively affecting Team D’s ranking. Team D has violated this rule.

Example 2: A MATCH is being played by Teams A, B, and C, in which Team A is assigned to participate as a SURROGATE. Team D encourages Team A to not

participate in the MATCH so that Team D gains ranking position over Teams B and C. Team D has violated this rule.

Example 3: Asking a team to “no show” for a MATCH.

FIRST considers the action of a team influencing another team to throw a MATCH, to deliberately miss Ranking Points, etc. incompatible with *FIRST* values and not a strategy any team should employ.

G204 *Letting someone coerce you into throwing a MATCH – also not cool. A team, as the result of encouragement by a team not on their ALLIANCE, may not play beneath its ability.

Note: This rule is not intended to prevent an ALLIANCE from planning and/or executing its own strategy in a specific MATCH in which all the ALLIANCE members are participants.

Violation: VERBAL WARNING. RED CARD if subsequent violations during the event.

Example 1: A MATCH is being played by Teams A, B, and C. Team D requests Team C ignore the CAGES at the end of the MATCH, resulting in Teams A, B, and C not being able to earn the BARGE RP. Team C accepts this request from Team D. Team D’s motivation for this behavior is to prevent Team A from rising in the Tournament rankings negatively affecting Team D’s ranking. Team C has violated this rule.

Example 2: A MATCH is being played by Teams A, B, and C, in which Team A is assigned to participate as a SURROGATE. Team A accepts Team D’s request not to participate in the MATCH so that Team D gains ranking position over Teams B and C. Team A has violated this rule.

FIRST considers the action of a team influencing another team to throw a MATCH, to deliberately miss Ranking Points, etc. incompatible with *FIRST* values and not a strategy any team should employ.

G205 *Throwing your own MATCH is bad. A team may not intentionally lose a MATCH or sacrifice Ranking Points in an effort to lower their own ranking or manipulate the rankings of other teams.

Violation: VERBAL WARNING. RED CARD if subsequent violations during the event.

The intent of this rule is not to punish teams who are employing alternate strategies, but rather to ensure that it is clear that throwing MATCHES to negatively affect your own rankings, or to manipulate the rankings of other teams (i.e. throw a MATCH to lower a partner's ranking, and/or increase the ranking of another team not in the MATCH) is incompatible with *FIRST* values and not a strategy any team should employ.

G206 *Don't violate rules for RPs. A team or ALLIANCE may not collude with another team to each purposefully violate a rule in an attempt to influence Ranking Points.

Violation: YELLOW CARD and the ALLIANCE is ineligible for CORAL and BARGE RPs.

For example, if Team A on the blue ALLIANCE agrees with Team F on the red ALLIANCE to contact each other's CAGES in TELEOP resulting in both ALLIANCES being awarded the BARGE RP.

G207 *Don't abuse ARENA access. A team member (except DRIVERS, HUMAN PLAYERS, and COACHES) granted access to restricted areas in and around the ARENA (e.g. via TECHNICIAN button, event issued

Media badges, etc.) may not assist or use signaling devices during the MATCH. Exceptions will be granted for inconsequential infractions and in cases concerning safety.

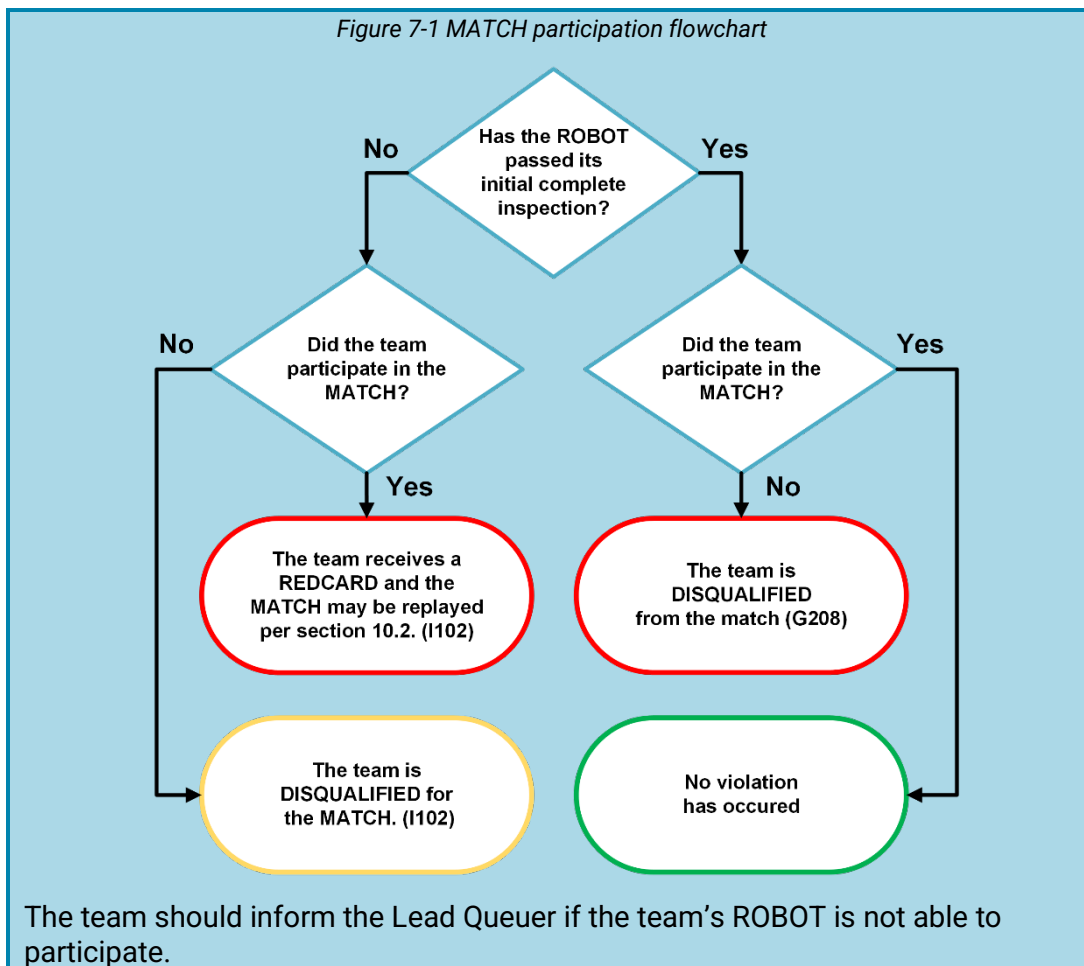
Violation: *VERBAL WARNING. YELLOW CARD if subsequent violations during the event.*

The TECHNICIAN'S role is to help the team prepare the ROBOT so it can perform at its full potential during a MATCH. The TECHNICIAN, except as described at the end of section [6.2 DRIVE TEAM](#), is not an additional COACH, DRIVER, or HUMAN PLAYER.

Team members in open-access spectator seating areas are not considered to be in a restricted area and are not prevented from assisting or using signaling devices. See [E102](#) for related details.

G208 *Show up to your MATCHES. If a ROBOT has passed initial, complete inspection, at least 1 member of its DRIVE TEAM must report to the ARENA and participate in each of their assigned Qualification and Playoff MATCHES.

Violation: *DISQUALIFIED.*



G209 *Keep your ROBOT together. A ROBOT may not intentionally detach or leave a part on the FIELD.

Violation: *RED CARD.*

G210 *Don't expect to gain by doing others harm. A strategy not consistent with standard gameplay and clearly aimed at forcing the opponent ALLIANCE to violate a rule is not in the spirit of *FIRST* Robotics Competition and not allowed. Rule violations forced in this manner will not result in an assignment of a penalty to the targeted ALLIANCE.

Violation: MAJOR FOUL. YELLOW CARD if REPEATED.

This rule does not apply for strategies consistent with standard gameplay, for example:

- A. a red ALLIANCE ROBOT attempting to climb in their BARGE ZONE in the final 20 seconds of the MATCH contacts a blue ALLIANCE ROBOT.
- B. a blue ROBOT attempts to enter their REEF ZONE to score a CORAL and pushes a red ROBOT just outside the blue REEF ZONE into it.

This rule requires an intentional act with limited or no opportunity for the team being acted on to avoid the penalty such as:

- C. forcing an opponent ROBOT to have greater than MOMENTARY CONTROL of more than 1 of each SCORING ELEMENT.
- D. a blue ALLIANCE ROBOT, pushing a red ALLIANCE ROBOT from fully outside and far from (i.e. more than 4 ft. (~121 cm)) the blue BARGE ZONE through the blue BARGE ZONE while another red ROBOT is already on the opposing ALLIANCE's side of the FIELD and the REFEREE perceiving that the blue ROBOT is deliberately making the red ROBOT violate [G421](#).
- E. a blue ALLIANCE ROBOT, pushing a red ALLIANCE ROBOT from fully outside and far from (i.e. more than 4 ft. (~121 cm)) the blue BARGE ZONE into a CAGE and the REFEREE perceiving that the blue ROBOT is deliberately making the red ROBOT violate [G418](#).

G211 *Egregious or exceptional violations. Egregious behavior beyond what is listed in the rules or subsequent violations of any rule or procedure during the event is prohibited.

In addition to rule violations explicitly listed in this manual and witnessed by a REFEREE, the Head REFEREE may assign a YELLOW or RED CARD for egregious ROBOT actions or team member behavior at any time during the event.

Please see section [6.6.1 YELLOW and RED CARDS](#) for additional detail.

Violation: YELLOW or RED CARD.

The intent of this rule is to provide the Head REFEREES the flexibility necessary to keep the event running smoothly, as well as keep the safety of all the participants as the highest priority. Behaviors that put the *FIRST* community or integrity of the game at risk are not allowed and are violations of this rule. Those behaviors include, but are not limited to the list below:

- A. inappropriate behavior as outlined in the blue box of [G201](#),
- B. jumping over the guardrail,
- C. pushing past the FIELD reset person blocking an open gate to get on the FIELD,
- D. reaching into the FIELD and grabbing a ROBOT during a MATCH,
- E. PINNING in excess of 15 seconds,
- F. exploiting the 3-second window after a MATCH described in section [6.5 Scoring](#) to avoid rule violations (e.g. triggering an over-extension that enables

- CAGE points or using a ROBOT'S residual energy to impact an opponent ROBOT on their BARGE),
- G. triggering scoring sensors or otherwise interfering with FMS or FIELD operation,
- H. climbing on the BARGE, and
- I. throwing an ALGAE directly at an opponent ROBOT
- J. deliberately, running an AUTO to disrupt the opponent ALLIANCE'S CAGES.
- K. deliberately, trying to disrupt multiple opponent ALLIANCE'S CAGES during TELEOP.

The Head REFEREE may assign a YELLOW or RED CARD for a single instance of a rule violation such as the examples given in items above, or for multiple instances of any single rule violation. Teams should be aware that any rule in this manual could escalate to a YELLOW or RED CARD. The Head REFEREE has final authority on all rules and violations at an event.

7.3 Pre-MATCH

G301 ***Be prompt.** A DRIVE TEAM member may not cause significant delays to the start of their MATCH. Causing a significant delay requires both of the following to be true:

- A. The expected MATCH start time has passed, and

Event volunteers communicate schedule delays with teams to the best of their ability. The Pit Display (which is typically located near the Pit Administration desk) shows any event timing delay. Announcements on the FIELD and in the pits also provide information on delays, and any team uncertain of when to queue for a MATCH should communicate with queuing volunteers.

During Qualification MATCHES, the expected start time of the MATCH is the time indicated on the MATCH schedule or the cycle time for current round minus 3 minutes from the end of the previous MATCH (which is reflected on the schedule on the Pit Display), whichever is later.

During Playoff MATCHES, the expected start time of the MATCH is the time indicated on the MATCH schedule or 15 minutes from either ALLIANCE'S previous MATCH, whichever is later.

- B. The DRIVE TEAM has access to the FIELD and is neither MATCH ready nor making a good faith effort, to quickly become MATCH ready.

Teams that have violated [G208](#) or have 1 DRIVE TEAM member present and have informed event staff that their ROBOT will not be participating in the MATCH are considered MATCH ready and not in violation of this rule.

Violation: If a Qualification MATCH, VERBAL WARNING, or if a subsequent violation within the tournament phase, MAJOR FOUL applied to their upcoming MATCH. If the DRIVE TEAM is not MATCH ready within 2 minutes of the VERBAL WARNING/MAJOR FOUL and the Head REFEREE perceives no good faith effort by the DRIVE TEAM to quickly become MATCH ready, DISABLED. If a Playoff MATCH, VERBAL WARNING issued the ALLIANCE, or if an ALLIANCE'S subsequent violation within the tournament phase, MAJOR FOUL applied to their upcoming MATCH. If the ALLIANCE is not MATCH ready within 2 minutes of the VERBAL WARNING having been issued to all 3 teams/MAJOR FOUL and the Head REFEREE perceives no good faith effort by the DRIVE TEAM to quickly become MATCH ready, their ROBOT is DISABLED.

The intent of this rule is to provide an equitable amount of time for both ALLIANCES to prepare for each MATCH and give DRIVE TEAMS grace given extenuating circumstances that cause them to be late.

Once a VERBAL WARNING /MAJOR FOUL is issued, the Head REFEREE starts a 2-minute timer and makes a good faith effort to share the timer's status with the delaying DRIVE TEAM.

Being "MATCH ready" requires that the ROBOT is on the FIELD, in its STARTING CONFIGURATION, and turned on. Additionally, the DRIVE TEAM members must be in their starting positions.

In general, good faith efforts to quickly become MATCH ready are entirely for the purposes of transitioning the ROBOT into a MATCH ready state (i.e. not attempts to significantly alter a ROBOT's capabilities.) Examples of good faith efforts to quickly become MATCH ready include but are not limited to:

- A. walking safely towards the FIELD with a ROBOT that a team is not actively modifying,
- B. applying quick fixes such as tape or cable ties to make the ROBOT compliant with STARTING CONFIGURATION requirements,
- C. waiting for an OPERATOR CONSOLE computer to boot, and
- D. working with FIELD STAFF to get the ROBOT connected to the FIELD.

Examples that are not considered good faith efforts to quickly become MATCH ready include but are not limited to:

- E. a ROBOT not moving to the FIELD,
- F. a ROBOT moving to the FIELD but being actively modified while doing so,
- G. a DRIVE TEAM member remaining on the FIELD once a MATCH is ready to begin (indicated by the green LEDs having turned off),
- H. installing BUMPERS, charging pneumatic systems, or any other ROBOT maintenance not considered a quick fix as described in item B above once on the FIELD,
- I. time-consuming use of alignment devices that are external to the ROBOT (e.g. a DRIVE TEAM could bring and use a measuring tape, as long as there is no delay to the MATCH by doing so), and
- J. repairs more substantial than those described in B.

There are no rules that prohibit use of hand tools (including battery operated tools) while setting up ROBOTS from the FIELD, provided they do not cause significant delay or cause safety concerns.

G302 ***You can't bring/use anything you want.** The only equipment that may be brought to the ARENA for use during a MATCH is listed below. Regardless of if equipment fits criteria below, it may not be employed in a way that breaks any other rules, introduces a safety hazard, blocks visibility for FIELD STAFF or audience members, or jams or interferes with the remote sensing capabilities of another team or the FIELD.

- A. the OPERATOR CONSOLE,
- B. non-powered signaling devices,
- C. reasonable decorative items,
- D. special clothing and/or equipment required due to a disability,
- E. devices used solely for planning, tracking, and communicating strategy within the same designated area (e.g. ALLIANCE AREA),

- F. devices used solely to record gameplay, and
- G. non-powered Personal Protective Equipment (examples include, but aren't limited to, gloves, eye protection, and hearing protection).

Items brought to the ARENA under allowances B-G must meet all following conditions:

- I. do not connect or attach to the OPERATOR CONSOLE, FIELD, or ARENA,
- II. do not connect or attach to another ALLIANCE member (other than items in category G),
- III. do not communicate with anything or anyone outside of the ARENA,
- IV. do not communicate with the TECHNICIAN,
- V. do not include any form of enabled wireless electronic communication with the exception of medically required equipment, and
- VI. do not in any way affect the outcome of a MATCH, other than by allowing the DRIVE TEAM to
 - a. plan or track strategy for the purposes of communication of that strategy to other ALLIANCE members or
 - b. use items allowed per B to communicate with the ROBOT.

Violation: MATCH will not start until the situation is remedied. If discovered or used inappropriately during a MATCH, YELLOW CARD.

Examples of equipment that may be considered a safety hazard in the confined space of the ALLIANCE AREA include, but are not limited to, a step stool or a large signaling device.

Examples of remote sensing capabilities include, but are not limited to, vision systems, acoustic range finders, sonars, and infrared proximity sensors.

Use of imagery that, to a reasonably astute observer, mimics the AprilTags employed on the FIELD is a violation of this rule.

Examples of wireless communication include, but are not limited to, radios, walkie-talkies, cell phones, Bluetooth communications, and Wi-Fi.

G303 *Start your ROBOTS. A ROBOT must meet all following MATCH-start requirements:

- A. it does not pose a hazard to humans, FIELD elements, or other ROBOTS,
- B. has passed initial, complete inspection, i.e. it's compliant with all ROBOT rules (for exceptions regarding Practice MATCHES, see section [9 Inspection and Eligibility](#)),
- C. if modified after initial Inspection, it's compliant with [1104](#),
- D. its BUMPERS overlap their ROBOT STARTING LINE,
- E. it's the only team-provided item left on the FIELD,
- F. it's not attached to, entangled with, or suspended from any FIELD element,
- G. it's confined to its STARTING CONFIGURATION (reference [R102](#) and [R104](#)), and
- H. it fully and solely supports not more than 1 CORAL (as described in section [6.3.4 SCORING ELEMENTS](#)).

Violation: If fix is a quick remedy, the MATCH won't start until all requirements are met. If it is not a quick remedy, DISABLED and, at the discretion of the Head REFEREE, must be re-inspected. If a ROBOT not compliant with part B or C participates, its team receives a RED CARD.

If a ROBOT is BYPASSED prior to the start of the MATCH, the DRIVE TEAM may not remove the ROBOT from the FIELD without permission from the Head REFEREE or the FTA.

For assessment of many of the items listed above, the Head REFEREE is likely to consult with the LRI.

7.4 In-MATCH

Rules in this section pertain to game play once a MATCH begins.

7.4.1 AUTO

The AUTO period is the first 15 seconds of the MATCH, and the FMS blocks any DRIVER control, so ROBOTS operate with only their pre-programmed instructions. Rules in this section apply only during the AUTO period.

G401 ***Behind the lines.** In AUTO, a DRIVE TEAM member staged behind a HUMAN STARTING LINE may not contact anything in front of that HUMAN STARTING LINE, unless for personal or equipment safety, to press the E-Stop or A-Stop, or granted permission by a Head REFEREE or FTA.

Violation: MINOR FOUL regardless of the number of items contacted.

Pointing, gesturing, or otherwise extending across the HUMAN STARTING LINE such that contact is not made with carpet or other ARENA elements is not a violation of this rule.

An example of an exception for equipment safety is if an OPERATOR CONSOLE starts to fall from, or has already fallen off of, the DRIVER STATION shelf. In that circumstance, DRIVE TEAM members may step forward to catch it or pick it up off the ground and return it to the shelf.

G402 ***Let the ROBOT do its thing.** In AUTO, a DRIVE TEAM member may not directly or indirectly interact with a ROBOT or an OPERATOR CONSOLE unless for personal safety, OPERATOR CONSOLE safety, or pressing an E-Stop or A-Stop. A HUMAN PLAYER feeding CORAL to a ROBOT is an exception to this rule.

Violation: MINOR FOUL and YELLOW CARD

G403 **Limited AUTO opponent interaction.** In AUTO, a ROBOT whose BUMPERS are completely across the BARGE ZONE (i.e. to the opposite side of the BARGE ZONE from its ROBOT STARTING LINE) may not contact an opponent ROBOT (either directly or transitively through a SCORING ELEMENT CONTROLLED by either ROBOT and regardless of who initiates contact).

Violation: MAJOR FOUL and VERBAL WARNING. YELLOW CARD if subsequent violations during the event.

G404 **No throwing in AUTO.** In AUTO, a HUMAN PLAYER may not enter ALGAE onto the field.

Violation: MINOR FOUL.

G405 **No opponents CAGES in AUTO.** In AUTO, a ROBOT may not contact the opposing ALLIANCE's CAGES.

Violation: MAJOR FOUL.

7.4.2 SCORING ELEMENTS

G406 ***ROBOTS: use SCORING ELEMENTS as directed.** A ROBOT may not deliberately use a SCORING ELEMENT in an attempt to ease or amplify a challenge associated with a FIELD element.

Violation: MAJOR FOUL.

Examples include, but are not limited to:
A. launching SCORING ELEMENTS at ROBOTS,

- B. using SCORING ELEMENTS to elevate ROBOTS in an attempt to get on a CAGE, and
- C. positioning SCORING ELEMENTS to impede opponent access to their PROCESSOR.
- D. Placing a CORAL into the PROCESSOR

G407 *Keep SCORING ELEMENTS in bounds. A ROBOT may not intentionally eject a SCORING ELEMENT from the FIELD (either directly or by bouncing off a FIELD element or other ROBOT) other than through a PROCESSOR.

Violation: MINOR FOUL. If REPEATED, MAJOR FOUL.

G408 *Don't abuse SCORING ELEMENTS. Neither a ROBOT nor a HUMAN PLAYER may damage a SCORING ELEMENT.

Violation: VERBAL WARNING. MAJOR FOUL if REPEATED in any subsequent MATCHES during the event. If via a ROBOT and the Head REFEREE determines that further damage is likely to occur, DISABLED.

Corrective action (such as eliminating sharp edges, removing the damaging MECHANISM, and/or re-inspection) may be required before the ROBOT may compete in subsequent MATCHES.

SCORING ELEMENTS are expected to undergo a reasonable amount of wear and tear as they are handled by ROBOTS, such as scratching or marking. Routinely gouging, tearing off pieces, or marking SCORING ELEMENTS are violations of this rule.

G409 1 of each at a time. A ROBOT may not simultaneously CONTROL more than 1 CORAL and 1 ALGAE either directly or transitively through other objects. A ROBOT is in CONTROL of a SCORING ELEMENT if

- A. the SCORING ELEMENT is fully supported by or stuck in, on, or under the ROBOT or
- B. the ROBOT intentionally pushes a SCORING ELEMENT to a desired location or in a preferred direction (i.e. herding).

A ROBOT pushing scored CORAL on level 1 while attempting to score other CORAL is an exception to this rule.

Violation: MINOR FOUL per additional SCORING ELEMENT. YELLOW CARD if excessive.

Examples of interaction with a SCORING ELEMENT that are not "CONTROL" include, but are not limited to:

- A. "bulldozing" (inadvertent contact with a SCORING ELEMENT while in the path of the ROBOT moving about the FIELD)
- B. "deflecting" (being hit by a SCORING ELEMENT that bounces into or off a ROBOT)
- C. inadvertent contact with a SCORING ELEMENT while attempting to acquire a SCORING ELEMENT from the CORAL STATION.

It is important to design your ROBOT so that it is impossible to inadvertently or unintentionally CONTROL more than the limit.

Excessive violations of CONTROL limits include, but are not limited to, simultaneous CONTROL of 3 or more CORAL or frequent, greater-than-MOMENTARY CONTROL (i.e. more than twice in a MATCH) of 2 or more CORAL.

G410 No de-scoring. A ROBOT may not de-score a CORAL scored on the opponent's REEF.

Violation: MAJOR FOUL per de-scored CORAL and the opposing ALLIANCE is awarded the CORAL RP.

G411 Don't put ALGAE on their REEF. A ROBOT may not deliberately put ALGAE on their opponent's REEF.

Violation: MAJOR FOUL and YELLOW CARD.

G412 Only throw CORAL if in your REEF ZONE. A ROBOT may not launch CORAL unless their BUMPERS are partially in their REEF ZONE.

Violation: MAJOR FOUL.

A CORAL is considered launched if it is shot into the air, kicked across the floor, or thrown in a forceful way.

This rule is not intended to penalize typical movement of CORAL outside an ALLIANCE'S REEF ZONE which come to rest a short distance from the ROBOT.

Examples of such actions could be but are not limited to:

- A. Running an intake in reverse causing a CORAL to travel a short distance from the ROBOT
- B. A ROBOT pushing a CORAL a short distance away in the process of herding it across the FIELD

7.4.3 ROBOT

G413 *ROBOTS must be safe. A ROBOT may not pose an undue hazard to a human, an ARENA element, or another ROBOT in the following ways:

- A. the ROBOT or anything it CONTROLS, e.g. a CORAL, contacts anything outside the FIELD except for MOMENTARY contact inside the CHUTE,
- B. its BUMPERS fail such that a segment completely detaches,
- C. a corner of its ROBOT PERIMETER is exposed,
- D. its team number or ALLIANCE color are indeterminate,
- E. its BUMPERS leave the BUMPER ZONE REPEATEDLY or for more than a MOMENTARY amount of time, or
- F. its operation or design is dangerous or unsafe.

Violation: DISABLED.

Examples of dangerous operation or designs that likely pose undue hazards include, but are not limited to:

- A. uncontrolled motion that cannot be stopped by the DRIVE TEAM,
- B. ROBOT parts "flailing" outside of the FIELD,
- C. ROBOTS dragging their battery, and
- D. ROBOTS that consistently extend outside the FIELD.

Please be conscious of REFEREES and FIELD STAFF working around the ARENA who may be in close proximity to your ROBOT.

G414 *Keep your BUMPERS low. BUMPERS must be in the BUMPER ZONE (see R405).

Violation: MINOR FOUL.

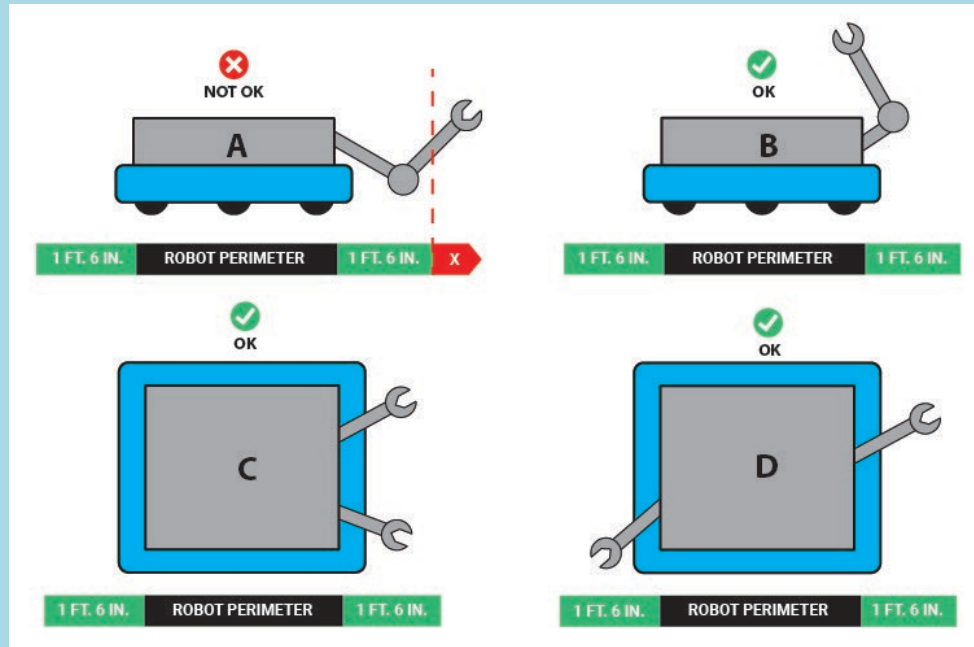
G415 Expansion limits. A ROBOT may not extend more than 1 ft. 6 in. (~45 cm) beyond the vertical projection of its ROBOT PERIMETER.

If the over-expansion is due to damage and not used for strategic benefit, it is an exception to this rule, and no penalty is imposed.

Violation: MINOR FOUL, or MAJOR FOUL if the over-expansion is used for strategic benefit, including if it impedes or enables a scoring action.

Examples of compliant and non-compliant extensions are shown in [Figure 7-2](#). ROBOT A violates this rule for having an extension that is too long, while ROBOTS B, C, and D do not violate this rule.

Figure 7-2 Examples of compliance and non-compliance of this rule (examples A and B are side views, examples C and D are top views)



The intent of this rule is to prevent piling on a punitive response to a ROBOT that's already experienced hardship and not leveraging that hardship for gain. Examples for this rule include the following:

- A. a physical device on a team's ROBOT, whose purpose is to restrain their CORAL scoring arm from extending beyond the limit, breaks after a collision with another ROBOT. Provided the ROBOT does not use the now-too-long extension to score SCORING ELEMENTS, no violation is assigned.
- B. a vertical structural member of a ROBOT breaks at the bottom and rotates out such that it breaches the limit imposed. The ROBOT then parks such that its extension blocks opponent ROBOTS from reaching their PROCESSOR. A MAJOR FOUL is issued.

G416 Don't damage the FIELD. A ROBOT may not damage FIELD elements.

Violation: VERBAL WARNING. If the Head REFEREE infers that additional damage is likely, DISABLED. YELLOW CARD for any subsequent damage during the event. Corrective action (such as eliminating sharp edges, removing the damaging MECHANISM, and/or re-inspection) may be required before the ROBOT will be allowed to compete in subsequent MATCHES.

G417 Watch your FIELD interaction. A ROBOT is prohibited from the following interactions with FIELD elements with the exception of CAGES.

- A. grabbing,
- B. grasping,
- C. attaching to (including the use of a vacuum or hook fastener to anchor to the FIELD carpet),
- D. becoming entangled with, and
- E. suspending from.

Violation: MAJOR FOUL, plus YELLOW CARD if REPEATED, or longer than MOMENTARY. If the Head REFEREE infers that damage is likely, DISABLED. Corrective action (such as removing the offending MECHANISM, and/or re-inspection) may be required before the ROBOT will be allowed to compete in subsequent MATCHES.

G418 An Opponent's CAGES are off-limits in TELEOP. In TELEOP, A ROBOT may not contact an opponent's CAGE.

Violation: MAJOR FOUL and opposing ALLIANCE is awarded the BARGE RP if a Qualification MATCH.

G419 ANCHORS are off-limits. A ROBOT may not contact the ANCHORS. Exceptions are granted for actions that are MOMENTARY and inconsequential.

Violation: MAJOR FOUL and the ALLIANCE is ineligible for the BARGE RP if a Qualification MATCH.

G420 NET and contents are off-limits. A ROBOT may not contact either NET or any ALGAE scored in a NET.

Violation: MAJOR FOUL. Additional MAJOR FOUL for each ALGAE de-scored.

G421 1 defender at a time. No more than 1 ROBOT may be on the opponent's side of the FIELD (i.e. containing the opponent REEF) with its BUMPERS fully outside and beyond the BARGE ZONES.

Violation: MINOR FOUL, and for every 3 seconds in which the situation is not corrected, a MAJOR FOUL is assessed.

7.4.4 Opponent Interaction

Note, [G422](#), [G423](#), [G424](#) are mutually exclusive. A single ROBOT to ROBOT interaction which violates more than 1 of these rules results in the most punitive penalty, and only the most punitive penalty, being assessed.

G422 *Stay out of other ROBOTS. A ROBOT may not use a COMPONENT outside its ROBOT PERIMETER (except its BUMPERS) to initiate contact with an opponent ROBOT inside the vertical projection of the opponent's ROBOT PERIMETER.

Violation: MINOR FOUL.

For the purposes of this rule, "initiate contact" requires movement towards an opponent ROBOT.

In a collision, it's possible for both ROBOTS to initiate contact.

G423 *This isn't combat robotics. A ROBOT may not damage or functionally impair an opponent ROBOT in either of the following ways:

- A. deliberately.
- B. regardless of intent, by initiating contact, either directly or transitively via a SCORING ELEMENT CONTROLLED by the ROBOT, inside the vertical projection of an opponent's ROBOT PERIMETER.

Damage or functional impairment because of contact with a tipped-over opponent ROBOT, which is not perceived by a REFEREE to be deliberate, is not a violation of this rule.

Violation: MAJOR FOUL and YELLOW CARD, or if opponent ROBOT is unable to drive, then MAJOR FOUL and RED CARD.

FIRST Robotics Competition can be a full-contact competition and may include rigorous game play. While this rule aims to limit severe damage to ROBOTS, teams should design their ROBOTS to be robust.

Examples of violations of this rule include, but are not limited to:

- A. A ROBOT leaves an arm extended, spins around to change course, and unintentionally hits and damages a COMPONENT inside the ROBOT PERIMETER of a nearby opponent ROBOT.
- B. A ROBOT, in the process of trying to quickly reverse direction, tips up on a single pair of wheels, lands atop an opponent ROBOT, and damages a COMPONENT inside that opponent's ROBOT PERIMETER.
- C. A ROBOT high-speed rams and/or REPEATEDLY smashes an opponent ROBOT and causes damage. The REFEREE infers that the ROBOT was deliberately trying to damage the opponent's ROBOT.

Examples of functionally impairing another ROBOT include, but are not limited to:

- D. opening an opponent's relief valve such that the opponent's air pressure drops and
- E. powering off an opponent's ROBOT (this example also clearly results in a RED CARD because the ROBOT is no longer able to drive).

At the conclusion of the MATCH, the Head REFEREE may elect to visually inspect a ROBOT to confirm violations of this rule made during a MATCH and remove the violation if the damage cannot be verified.

For the purposes of this rule, "initiating contact" requires movement towards an opponent ROBOT.

In a collision, it's possible for both ROBOTS to initiate contact.

"Unable to drive" means that because of the incident, the DRIVER can no longer drive to a desired location in a reasonable time (generally). For example, if a ROBOT can only move in circles, or can only move extremely slowly, the ROBOT is considered unable to drive.

G424 ***Don't tip or entangle.** A ROBOT may not deliberately, attach to, tip, or entangle with an opponent ROBOT.

Violation: MAJOR FOUL and YELLOW CARD, or if CONTINUOUS or opponent ROBOT is unable to drive, then MAJOR FOUL and RED CARD.

Examples of violations of this rule include, but are not limited to:

- A. using a wedge-like MECHANISM to tip over opponent ROBOTS,
- B. making BUMPER-to-BUMPER contact with an opponent ROBOT that is attempting to right itself after previously falling over and causing them to fall over again, and
- C. causing an opponent ROBOT to tip over by contacting the ROBOT after it starts to tip if, in the judgement of the REFEREE, that contact could have been avoided.

Tipping as an unintended consequence of normal ROBOT to ROBOT interaction, including single BUMPER to BUMPER hits that result in a ROBOT tipping, is not a violation of this rule.

"Unable to drive" means that because of the incident, the DRIVER can no longer drive to a desired location in a reasonable time (generally). For example, if a ROBOT can only move in circles, or can only move extremely slowly, the ROBOT is considered unable to drive.

G425 *There's a 3-count on PINS. A ROBOT may not PIN an opponent's ROBOT for more than 3 seconds. A ROBOT is PINNING if it is preventing the movement of an opponent ROBOT by contact, either direct or transitive (such as against a FIELD element). A PIN count ends once any of the following criteria below are met:

- A. the ROBOTS have separated by at least 6 ft. (~183 cm) from each other for more than 3 seconds,
- B. either ROBOT has moved 6 ft. from where the PIN initiated for more than 3 seconds, or
- C. the PINNING ROBOT gets PINNED.

For criteria A, the PIN count pauses once ROBOTS are separated by 6 ft. until either the PIN ends or the PINNING ROBOT moves back within 6 ft., at which point the PIN count is resumed.

For criteria B, the PIN count pauses once either ROBOT has moved 6ft from where the PIN initiated until the PIN ends or until both ROBOTS move back within 6ft., at which point the PIN count is resumed.

Violation: MINOR FOUL, and for every 3 seconds in which the situation is not corrected, a MAJOR FOUL is assessed.

A team's desired direction of travel is not a consideration when determining if a ROBOT is PINNED.

G426 *Don't collude with your partners to shut down major parts of game play. 2 or more ROBOTS that appear to a REFEREE to be working together may not isolate or close off any major element of MATCH play.

Violation: MAJOR FOUL, and for every 3 seconds in which the situation is not corrected, a MAJOR FOUL is assessed.

Examples of violations of this rule include, but are not limited to:

- A. shutting down access to all SCORING ELEMENTS,
- B. quarantining all opponents to a small area of the FIELD,
- C. blocking all access to the opponent's PROCESSOR, and
- D. blocking all access to the opponent's CAGES.

A single ROBOT blocking access to a particular area of the FIELD is not a violation of this rule.

2 ROBOTS independently playing defense on 2 opponent ROBOTS is not a violation of this rule.

G427 ZONE protection. A ROBOT may not contact, directly or transitively through a SCORING ELEMENT, an opponent ROBOT partially inside the opponent's BARGE ZONE or REEF ZONE regardless of who initiates contact.

Violation: MAJOR FOUL.

ROBOTS that contact each other while in their respective BARGE ZONES may result in a violation for both ALLIANCES

G428 CAGE protection. A ROBOT may not contact, directly or transitively through a SCORING ELEMENT, an opponent ROBOT in contact with an opponent CAGE during the last 20 seconds regardless of who initiates contact.

Violation: MAJOR FOUL and the opponent ALLIANCE is awarded the BARGE RP

7.4.5 Human

G429 *No wandering. A DRIVE TEAM member must remain in their designated area as follows:

- A. DRIVERS and COACHES may not contact anything outside their ALLIANCE AREA,
- B. a DRIVER must use the OPERATOR CONSOLE in the DRIVER STATION to which they are assigned, as indicated on the team sign,
- C. a HUMAN PLAYER may not contact anything outside the ALLIANCE AREA or PROCESSOR AREA in which they started the MATCH, and
- D. a TECHNICIAN may not contact anything outside their designated area.

Exceptions are granted as follows:

- E. for a HUMAN PLAYER partially outside the ALLIANCE or PROCESSOR AREA,
- F. in cases concerning safety, and
- G. for actions that are inadvertent, MOMENTARY, and inconsequential.

Violation: *MINOR FOUL*

An intent of item B is to prevent unsafe situations where long tethers to OPERATOR CONSOLE devices increase tripping hazards as the operator moves about the ALLIANCE AREA. In the interest of avoiding nuisance penalties associated with a DRIVE TEAM member stepping outside of a prescribed area, we prefer to offer a general guideline as to what it means to use the OPERATOR CONSOLE in the ALLIANCE AREA. Provided the DRIVE TEAM member is within close proximity of their DRIVER STATION, there will be no repercussions. However, a DRIVE TEAM member located more than approximately half a DRIVER STATION width away from their own DRIVER STATION while using their OPERATOR CONSOLE is likely violating this rule.

G430 *COACHES and other teams: hands off the controls. A ROBOT shall be operated only by the DRIVERS and/or HUMAN PLAYERS of that team. A COACH activating their E-Stop or A-Stop is the exception to this rule.

Violation: *MAJOR FOUL. RED CARD if greater-than-MOMENTARY.*

Exceptions may be made before a MATCH for major conflicts, e.g. religious holidays, major testing, transportations issues, etc.

G431 *DRIVE TEAMS, watch your reach. A DRIVE TEAM member may not extend into the CHUTE.

Violation: *MINOR FOUL.*

G432 *Humans: use SCORING ELEMENTS as directed. A DRIVE TEAM member may not deliberately use a SCORING ELEMENT in an attempt to ease or amplify a challenge associated with a FIELD element.

Violation: *MAJOR FOUL.*

Examples include, but are not limited to:

- A. a HUMAN PLAYER uses an ALGAE to disrupt an opponent ROBOT
- B. leaving ALGAE in the PROCESSOR such that multiple stack up in the PROCESSOR exit

G433 *SCORING ELEMENT delivery. SCORING ELEMENTS may only be entered onto the FIELD as follows:

- A. CORAL may only be introduced to the FIELD by a HUMAN PLAYER or DRIVER through the CORAL STATION and

B. ALGAE may only be entered onto the FIELD by a HUMAN PLAYER in their PROCESSOR AREA.

Violation: MAJOR FOUL.

G434 ***COACHES, SCORING ELEMENTS are off limits.** COACHES may not touch SCORING ELEMENTS, unless for safety purposes.

Violation: MINOR FOUL.

G435 **The PROCESSOR AREA has a storage limit.** HUMAN PLAYERS may not store more than 4 ALGAE in the PROCESSOR AREA (up to 3 in the holders on top of the PROCESSOR and no more than 1 at the end of the PROCESSOR exit ramp). HUMAN PLAYERS making a good-faith effort to immediately enter additional ALGAE is an exception to this rule.

Violation: MAJOR FOUL per additional ALGAE.

7.5 Post-MATCH

G501 ***Leave promptly.** A DRIVE TEAM member may not cause significant or multiple delays to the start of a subsequent MATCH, scheduled break content, or other FIELD activities.

Violation: VERBAL WARNING. YELLOW CARD if subsequent violations at any point during the event.

