

7 Game Rules (G)

7.1 Personal Safety

- G101 *Humans, remain outside the FIELD.** A team member may not reach into the FIELD with any part of their body during a MATCH .

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 reaches onto the FIELD during MATCH 3, and a different member reaches onto the FIELD during 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 and only enter 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.

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.

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

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

The REBUILT FIELD has obstacles, and caution should be applied when navigating the FIELD. Teams should avoid carrying their ROBOT over the BUMP.

Walking over the BUMP is not considered climbing on.

- 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 the TOWER 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 TOWER at the end of the MATCH, resulting in Teams A, B, and C not being able to earn the TRAVERSAL 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 the BONUS RPs.

For example, if Team A on the blue ALLIANCE agrees with Team F on the red ALLIANCE to contact each other while each ROBOT is climbing the TOWER resulting in both ALLIANCES being awarded the TRAVERSAL RP.

- G207 *Don't abuse ARENA access.** A team member (except DRIVERS, HUMAN PLAYERS, and DRIVE 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.

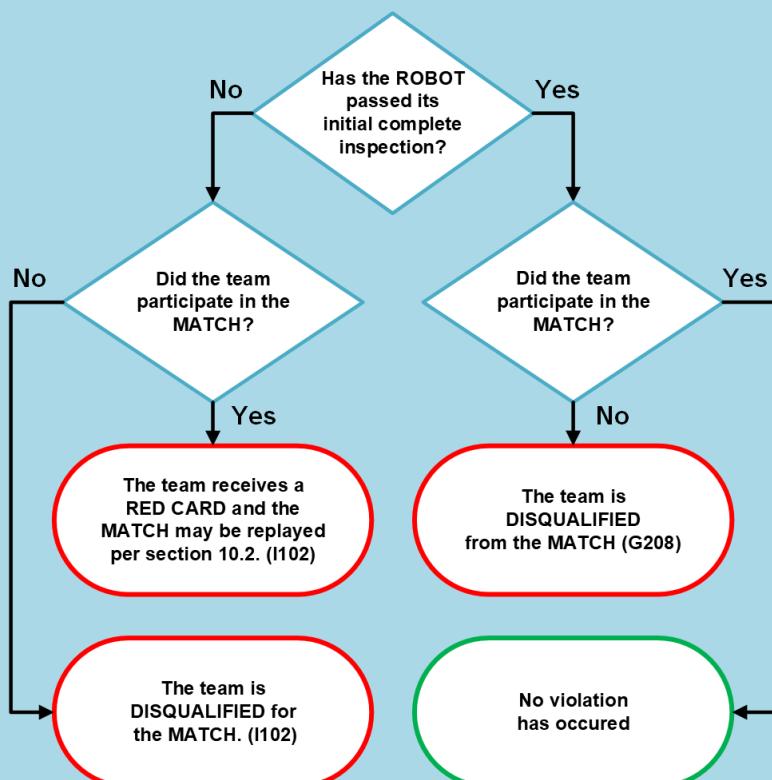
The TECHNICIAN'S role is to help the team prepare the ROBOT so it can perform at its full potential during a MATCH. The TECHNICIAN, except as described at the end of section [6.2 DRIVE TEAM](#), is not an additional DRIVE COACH, DRIVER, or HUMAN PLAYER.

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 Qualification 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 MATCHES.

Violation: DISQUALIFIED from the current MATCH.

Figure 7-1 MATCH participation flowchart



The team should inform the Lead Queuer if the team's ROBOT is not able to participate.

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 red ALLIANCE ROBOT attempting to climb their TOWER in the final 30 seconds of the MATCH contacts a blue ALLIANCE ROBOT.
- a blue ALLIANCE ROBOT is attempting to play defense on a red ALLIANCE ROBOT attempting to score into the HUB from within their ALLIANCE ZONE and pushes them outside their ALLIANCE ZONE.

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 catch FUEL by pushing them far from (i.e. more than 48.0in (1.22m)) the HUB exit to under the HUB exit to make them violate [G408](#).
- D. a blue ALLIANCE ROBOT, pushing a red ALLIANCE ROBOT far from (i.e. more than 48.0in (1.22m)) the TOWER into another red ALLIANCE ROBOT which is in contact with the TOWER and the REFEREE perceiving that the blue ROBOT is deliberately making the red ROBOT violate [G420](#).

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. a single PIN 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 TOWER points or using a ROBOT'S residual energy to impact an opponent ROBOT on their TOWER),
- G. triggering scoring sensors or otherwise interfering with FMS or FIELD operation,
- H. intentionally crossing the CENTER LINE in AUTO in order to interfere with an opponent ROBOT'S AUTO,
- I. intentionally ejecting a large quantity of FUEL out of the FIELD,
- J. intentionally exceeding the expansion limits for strategic benefit (i.e. climb the TOWER, block part of the FIELD, etc.),
- K. a HUMAN PLAYER hoarding a large quantity of FUEL outside the designated locations in [G427](#),
- L. Intentionally scoring a large quantity of FUEL into the HUB from the NEUTRAL ZONE.

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.

- G212 *All teams can play.** A team may not encourage another team to exclude their ROBOT or be BYPASSED from a qualification MATCH for any reason.

Violation: YELLOW CARD. RED CARD if the ROBOT does not participate in the MATCH.

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. MAJOR FOUL for the upcoming MATCH if a subsequent violation occurs within the tournament phase. 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 to the ALLIANCE. MAJOR FOUL for the ALLIANCE'S upcoming MATCH if a subsequent violation occurs within the tournament phase. If the ALLIANCE is not MATCH ready within 2 minutes of the VERBAL WARNING/MAJOR FOUL having been issued to all 3 teams and the Head REFEREE perceives no good faith effort by the DRIVE TEAM(s) to quickly become MATCH ready, the offending team's 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 *Limit what you use during a MATCH. Items used during a match must fit on your team's DRIVER STATION shelf, be worn or held by members from your DRIVE TEAM, or be an item used as an accommodation (e.g. stools, crutches, etc.). Regardless of if the equipment fits the criteria above, it may not:

- A. be employed in a way that introduces a safety hazard,
- B. extend more than 78.0in (1.981m) above the floor,

- C. communicate with anything or anyone outside of the ARENA with the exception of medically required equipment,
- D. block visibility for FIELD STAFF or audience members, or
- E. jam or interfere with the remote sensing capabilities of another team or the FIELD.

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 folding step stool, ladder, or a large signaling device.

Using an item that has wireless communications disabled complies with C above.

Examples of jamming or interfering with remote sensing capabilities include, but are not limited to, mimicking the FIELD AprilTags and shining bright lighting or laser pointers onto the FIELD.

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 & Eligibility \(I\)](#)),
- C. if modified after initial Inspection, it's compliant with I104,
- D. its BUMPERS overlap their ROBOT STARTING LINE,
- E. it's not contacting the BUMP,
- F. it's the only team-provided item left on the FIELD,
- G. it's not attached to, entangled with, or suspended from any FIELD element,
- H. it's confined to its STARTING CONFIGURATION (reference R102 and R104), and
- I. it fully and solely supports not more than 8 FUEL (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 20 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, each DRIVE TEAM member must remain in their staged areas. 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 entering FUEL onto the FIELD 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 CENTER LINE (i.e. to the opposite side of the CENTER LINE from its ROBOT STARTING LINE) may not contact an opponent ROBOT.

Violation: MAJOR FOUL.

7.4.2 SCORING ELEMENTS

- G404 *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:

- launching SCORING ELEMENTS at opponent ROBOTS,
- using SCORING ELEMENTS to elevate ROBOTS in an attempt to climb the TOWER,
- positioning SCORING ELEMENTS to impede opponent access to their TOWER,

- G405 *Keep SCORING ELEMENTS in bounds.** A ROBOT may not intentionally eject SCORING ELEMENTS from the FIELD (either directly or by bouncing off a FIELD element or other ROBOT) with an exception of the OUTPOST.

Violation: MINOR FOUL. If REPEATED, MAJOR FOUL.

- G406 *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.

- G407 Only score while in your ALLIANCE ZONE.** A ROBOT may not launch a SCORING ELEMENT into their HUB unless their BUMPERS are partially or fully within their ALLIANCE ZONE.

Violation: MAJOR FOUL

- G408 Don't catch FUEL.** A ROBOT may not do either of the following with FUEL released by the HUB unless and until that FUEL contacts anything else besides that ROBOT or FUEL CONTROLLED by that ROBOT:

- gain greater than MOMENTARY CONTROL of FUEL, or
- push or redirect FUEL to a desired location or in a preferred direction.

A ROBOT is in CONTROL of a SCORING ELEMENT if the SCORING ELEMENT is fully supported by or stuck in, on, or under the ROBOT.

Violation: MINOR FOUL. If strategic, MAJOR FOUL and YELLOW CARD.

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

- "bulldozing" (inadvertent contact with a SCORING ELEMENT while in the path of the ROBOT moving about the FIELD),
- "deflecting" (being hit by a SCORING ELEMENT that bounces off a ROBOT and moves in a random direction.)

Examples of interaction which would be considered strategic include, but are not limited to:

- intentionally sitting under the HUB to collect a large quantity of FUEL,
- intentionally sitting under the HUB in order to redirect FUEL into your ALLIANCE ZONE.

7.4.3 ROBOT

- G409 *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. FUEL, contacts anything outside the FIELD except for MOMENTARY contact inside the CHUTE and/or the CORRAL,
- 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 (see R405) REPEATEDLY or for more than a MOMENTARY amount of time, or
- F. its operation or design is dangerous or unsafe.

Violation: DISABLED. Corrective action (such as repair of BUMPERS, removing the unsafe MECHANISM, and/or re-inspection) may be required before the ROBOT will be allowed to compete in subsequent MATCHES.

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.

G410 *Keep your BUMPERS low. ROBOT extensions may not interact with the carpet, BUMPS, or TOWER BASE such that the BUMPERS are lifted out of the BUMPER ZONE (see [R405](#)).

Violation: MINOR FOUL. 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.

G411 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.

G412 Watch your FIELD interaction. A ROBOT is prohibited from the following interactions with FIELD elements (with the exception of the RUNGS and UPRIGHTS):

- 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.

- G413 Expansion limits.** A ROBOT may not extend beyond any of the horizontal or vertical expansion limits described in [R105](#), [R106](#), and [R107](#).

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. 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.

The intent of the exception to 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 TOWER mechanism from extending beyond the limit, breaks after a collision with another ROBOT. Provided the ROBOT does not use the now-too-long extension to climb the TOWER, no violation is assigned.
- B. a vertical structural member of a ROBOT breaks at the bottom and rotates out such that it exceeds the limit imposed. The ROBOT then parks such that its extension blocks opponent ROBOTS from reaching the OUTPOST. A MAJOR FOUL is issued.

- G414 Don't Climb on each other.** ROBOTS may not fully support the weight of other ROBOTS on their ALLIANCE to climb the TOWER.

Violation: Supported ROBOTS become ineligible for TOWER points for the remainder of the MATCH.

7.4.4 Opponent Interaction

Note, [G415](#), [G416](#), [G417](#) 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.

- G415 *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.

- G416 *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.

G417 *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.

G418 *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 72.0in (1.83m) from each other for more than 3 seconds,
- B. either ROBOT has moved 72.0in (1.83m) 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 72.0in (1.83m) until either the PIN ends or the PINNING ROBOT moves back within 72.0in (1.83m), at which point the PIN count is resumed.

For criteria B, the PIN count pauses once either ROBOT has moved 72.0in (1.83m) from where the PIN initiated until the PIN ends or until both ROBOTS move back within 72.0in (1.83m), 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.

G419 *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. preventing access to the opponent's TOWER,
- D. preventing access to a field zone by blocking both TRENCHES, and
- E. preventing access to a field zone by blocking both BUMPS.

Examples of standard gameplay that are not violations, include, but are not limited to:

- F. A single ROBOT blocking access to a particular area of the FIELD, and
- G. 2 ROBOTS independently collecting SCORING ELEMENTS in front of a BUMP or TRENCH at the same time.

G420 TOWER protection. A ROBOT may not contact, directly or transitively through a SCORING ELEMENT, an opponent ROBOT in contact with an opponent TOWER during the last 30 seconds of the MATCH regardless of who initiates contact.

Violation: MAJOR FOUL and if the opponent ROBOT is off the ground the opponent ROBOT is awarded LEVEL 3 TOWER points.

Transitive contact requires that each robot is contacting the same SCORING ELEMENT(S) simultaneously.

7.4.5 Human

G421 *No wandering. A DRIVE TEAM member must remain in their designated area as follows:

- A. DRIVERS and DRIVE 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 their ALLIANCE AREA, 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 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.

G422 *DRIVE 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 DRIVE 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.

G423 *DRIVE TEAMS, watch your reach. A DRIVE TEAM member may not extend:

- into the CHUTE beyond the ALLIANCE-colored tape line while the CHUTE DOOR is open, or
- into the CORRAL beyond the ALLIANCE-colored tape line.

Violation: MINOR FOUL.

Teams should be careful when placing or collecting SCORING ELEMENTS and be aware of [G101](#).

G424 *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.

An example of a violation of this rule is if a HUMAN PLAYER uses a FUEL to disrupt an opponent ROBOT attempting to climb on the TOWER.

G425 *SCORING ELEMENT delivery. FUEL may only be introduced to the FIELD by a HUMAN PLAYER or DRIVER in the following ways:

- through the CHUTE,
- through the bottom opening in the OUTPOST, or
- thrown from the OUTPOST AREA.

Violation: MAJOR FOUL.

G426 *DRIVE COACHES, SCORING ELEMENTS are off limits. DRIVE COACHES may not touch SCORING ELEMENTS, unless for safety purposes.

Violation: MINOR FOUL.

- G427 The OUTPOST has a storage limit.** Off-FIELD FUEL may only be stored in the CHUTE and the CORRAL. Excess FUEL, defined as the CHUTE & CORRAL being full, must immediately be entered onto the FIELD.

HUMAN PLAYERS making a good-faith effort to immediately move or enter additional FUEL is an exception to this rule.

Violation: MINOR FOUL, and if CONTINUOUS, a MAJOR FOUL is assessed.

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.

