Team Update 11

General

n/a

Game Manual

Section 5.2 Areas, Zones & Markings

- WING: an infinitely tall volume bounded by the ALLIANCE WALL, opponent's SOURCE wall, guardrail, the ALLIANCE colored line that spans the width of the FIELD, and AMP wall. The WING includes the tape.

Section 6.6.4 Violation Details

EXAMPLE VIOLATION	EXPANDED INTERPRETATION
TECH FOUL, ~~PLUS~~ AND ~~AN ADDITIONAL TECH FOUL~~ FOR EVERY 5 SECONDS IN WHICH THE SITUATION IS NOT CORRECTED, A TECH FOUL IS ASSESSED	Upon violation, a TECH FOUL is assessed against the violating ALLIANCE and the REFEREE begins to count. Their count continues until the criteria to discontinue the count are met, and for each 5 seconds within that time, an additional TECH FOUL is assessed against the violating ALLIANCE. A ROBOT in violation of this type of rule for 15 seconds receives a total of 4 TECH FOULS (assuming no other rules were being simultaneously violated).

Section 7.2 Conduct

G212 ***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. There are certain behaviors that automatically result in a YELLOW or RED CARD because this behavior puts the *FIRST* community or integrity of the game at risk. 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 5-second window after a MATCH described in Section 6.5 Scoring to avoid rule violations (e.g. triggering an over-extension that enables ONSTAGE points or using a ROBOT'S residual energy to impact an opponent ROBOT on their STAGE),
G. triggering scoring sensors or otherwise interfering with FMS or FIELD operation,
H. feeding a NOTE to a ROBOT from behind the AMP, violating G429, to increase rate of scoring and accelerate progress toward the MELODY RP, and
I. climbing on a STAGE.

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.

Section 7.3 Pre-MATCH

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 10.4 Practice MATCHES),
C. …

Section 7.4.2 GAME PIECES

G410 **Don't abuse GAME PIECES.** Neither a ROBOT nor a HUMAN PLAYER may damage a GAME PIECE.

Violation: Verbal warning~~, plus~~. TECH 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.

Section 7.4.4 Opponent Interaction

G420 ***There's a 5-count on PINS.** A ROBOT may not PIN an opponent's ROBOT for more than 5 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 5 seconds,
B. either ROBOT has moved 6 ft. from where the PIN initiated for more than 5 seconds, or
C. the PINNING ROBOT gets PINNED.

For criteria A ~~and B~~, 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: FOUL, ~~plus~~ and ~~an additional TECH FOUL~~ for every 5 seconds in which the situation is not corrected, a TECH FOUL is assessed.

G421 ***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: TECH FOUL, ~~plus~~ and ~~an additional TECH FOUL~~ for every 5 seconds in which the situation is not corrected, a TECH FOUL is assessed.

Section 8.4 BUMPER Rules

R408 ***BUMPER construction.** BUMPERS must be constructed as follows, such that the cross section resembles Figure 8-6:

A. …
B. …
C. use a stacked pair of 2½ in. (~63 mm) round, petal, or hex "pool noodles" (solid or hollow) as the BUMPER cushion material (see Figure 8-6). All pool noodles used in a BUMPER set (e.g. red set of BUMPERS) may not be modified (with the exception of cutting to length or cutting to facilitate mating pool noodles at the corners as required by R409) or deformed and must be the same diameter, cross section, and density (e.g. all round hollow or all hex solid). Pool noodles may be attached together using soft fasteners like tape, provided the physical properties of the BUMPER are not significantly altered. Per R409 cushion material may extend beyond the end of the plywood in order to fill a corner (see Figure 8-7). To assist in applying the fabric covering, soft fasteners may be used to attach the pool noodles to the wood backing, so long as the cross section in Figure 8-6 is not significantly altered (e.g. tape compressing the pool noodles).

Section 8.5 Motors & Actuators

R501 ***Allowable motors.**

Table 8-1 Motor allowances

Motor Name	Part Numbers Available
COTS linear actuators rated for 12V and wired downstream of a breaker 20A or less	

Section 8.6 Power Distribution

R621 ***Protect circuits with appropriate circuit breakers.**

Table 8-2 Branch circuit protection requirements

Branch Circuit	Circuit Breaker/Fuse Value	Quantity Allowed Per Breaker
Servo Power Module	Up to 20A	1

R625 ***Don't modify critical power paths.** CUSTOM CIRCUITS shall not directly alter the power pathways between the ROBOT battery, PDP/PDH, motor controllers, relays (per R504-B), motors and actuators (per R501), pneumatic solenoid valves, or other elements of the ROBOT control system (items explicitly mentioned in ~~R701~~ R710). Custom high impedance voltage monitoring or low impedance current monitoring circuitry connected to the ROBOT'S electrical system is acceptable, if the effect on the ROBOT outputs is inconsequential.

Section 8.7 Control, Command & Signals System

R710 ***Only specified modifications to control system devices permitted.** The Driver Station Software, roboRIO, PDP/PDH, PCM(s)/PH(s), VRM(s)/RPM(s), RSL, 120A breaker, motor controllers, MXP devices used to control actuators per R713-C, relay modules (per R504-B), wireless bridge, PDH/PDP breakers and fuses, Servo Power Module, and batteries shall not be tampered with, modified, or adjusted in any way (tampering includes drilling, cutting, machining, rewiring, disassembling, painting, etc.), with the following exceptions:

> Please note that the Driver Station Software is a separate application from the Dashboard. The Driver Station Software may not be modified, while teams are expected to customize their Dashboard code.

A. User programmable code in the roboRIO may be customized.

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R. adding insulating material to exposed conductors ~~on PDH/PDP breakers and fuses~~.

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T. tape may be applied for debris protection.