

## Team Update 06

### General

Minor formatting corrections to broken links within the document.

### Competition Manual

#### Section 6.1 Team Judges Awards Overview and Schedule

**A111** \*The number of awards given scales with event size. Total number of awards given is based on the number of teams checked in at the event. Not all awards are given at every competition. Check the [Judge and Judge Advisor Manuals](#) for exact details.

Table 0-1: Total judged awards available based on all event participating teams

Award		Total-Awards-Event Participating Teams			
Award		4-10 Teams	11-20 Teams	21-40 Teams	41-64 Teams
Inspire Award		1 <sup>st</sup> Place	1 <sup>st</sup> Place 2 <sup>nd</sup> Place	1 <sup>st</sup> Place 2 <sup>nd</sup> Place 3 <sup>rd</sup> Place	1 <sup>st</sup> Place 2 <sup>nd</sup> Place 3 <sup>rd</sup> Place
Think Award		1 <sup>st</sup> Place	1 <sup>st</sup> Place	1 <sup>st</sup> Place 2 <sup>nd</sup> Place	1 <sup>st</sup> Place 2 <sup>nd</sup> Place (3 <sup>rd</sup> Place*)
TA Awards	Connect Award	1 <sup>st</sup> Place (1 TA award will be given)	1 <sup>st</sup> Place	1 <sup>st</sup> Place (2 <sup>nd</sup> Place*)	1 <sup>st</sup> Place 2 <sup>nd</sup> Place (3 <sup>rd</sup> Place*)
	Motivate Award		1 <sup>st</sup> Place	1 <sup>st</sup> Place (2 <sup>nd</sup> Place*)	1 <sup>st</sup> Place 2 <sup>nd</sup> Place (3 <sup>rd</sup> Place*)
MCI Awards	Design Award	1 <sup>st</sup> Place (1 MCI award will be given)	1 <sup>st</sup> Place	1 <sup>st</sup> Place (2 <sup>nd</sup> Place*)	1 <sup>st</sup> Place 2 <sup>nd</sup> Place (3 <sup>rd</sup> Place*)
	Innovate Award		1 <sup>st</sup> Place	1 <sup>st</sup> Place (2 <sup>nd</sup> Place*)	1 <sup>st</sup> Place 2 <sup>nd</sup> Place (3 <sup>rd</sup> Place*)
	Control Award		1 <sup>st</sup> Place	1 <sup>st</sup> Place (2 <sup>nd</sup> Place*)	1 <sup>st</sup> Place 2 <sup>nd</sup> Place (3 <sup>rd</sup> Place*)

### Section 10.3.1 SCORING ELEMENTS

SAMPLES should be placed on SPIKE MARKS such that they are completely covering the SPIKE MARK. Teams may adjust the placement of SAMPLES on the SPIKE MARKS in front of their DRIVE TEAM as long as the SAMPLE completely covers the SPIKE MARK and there is no delay to the start of the MATCH.

Where there is variance in the relative sizing of the SAMPLES and the SPIKE MARK, a best effort should be made to completely cover the SPIKE MARK.

### Section 10.3.3 OPERATOR CONSOLES

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Removed repeated bullet points:

DRIVE TEAMS set up their OPERATOR CONSOLES as soon as they are staged in their ALLIANCE AREA. OPERATOR CONSOLES must be compliant with all relevant rules, specifically those in section [12.9 OPERATOR CONSOLE](#). A DRIVE TEAM obstructing or delaying OPERATOR CONSOLE set up is at risk of violating [G301](#).

- A. DRIVE TEAMS running an AUTO OpMode during the AUTO period must select an OpMode within their DRIVER STATION app with the 30 second timer enabled.
- B. DRIVE TEAMS not running an OpMode during the AUTO period must select a TELEOP OpMode within the DRIVER STATION app.
- C. the OpMode must be initialized by pressing the "INIT" button on the DRIVER STATION app.
- ~~D. DRIVE TEAMS running an AUTO OpMode during the AUTO period must select an OpMode within their DRIVER STATION app with the 30 second timer enabled.~~
- ~~E. DRIVE TEAMS not running an OpMode during the AUTO period must select a TELEOP OpMode within the DRIVER STATION app.~~
- ~~F. the OpMode must be initialized by pressing the "INIT" button on the DRIVER STATION app.~~

### Section 10.5.3 ROBOT Scoring Criteria

A ROBOT is considered ASCENDING once it is attempting to achieve an ASCENT LEVEL, and ASCENDED once it has achieved an ASCENT LEVEL.

The intent of part B of this rule is for the ROBOT to start its ASCENT outside of the SUBMERSIBLE ZONE except for elements used by the ROBOT to contact the RUNG. Once ROBOTS start their ASCENT, parts of the CHASSIS may swing into the SUBMERSIBLE ZONE, which is not a violation of this rule.

ROBOTS attempting a LEVEL 3 ASCENT which then violate C. i or ii, may still be eligible for lower LEVEL ASCENT points as long as all other lower LEVEL ASCENT criteria are met at the end of the MATCH period. In this scenario, if a ROBOT would like to reattempt a LEVEL 3 ASCENT they must disengage from the HIGH RUNG SUBMERSIBLE and attempt their LEVEL 3 ASCENT again.

ROBOTS supported by an ALLIANCE partner ROBOT, SCORING ELEMENTS, other non-RUNG elements of the SUBMERSIBLE or the FIELD floor will not be awarded an ASCENT LEVEL 2 or 3.

## Section 11.1 Personal Safety

**G101** \*Humans, stay off the FIELD during the MATCH. Other than actions explicitly allowed in sections [10.3.1 SCORING ELEMENTS](#) and [11.4.6 HUMAN](#) a DRIVE TEAM member may only enter the FIELD during pre-MATCH set-up to place their ROBOT or after a MATCH is over to collect their ROBOT when instructed to do so by the Head REFEREE or their designee.

*Violation: Verbal warning, plus YELLOW CARD if subsequent violations during the event.*

## Section 11.4.2 TELEOP

**G405** \*ROBOTS are motionless between AUTO and TELEOP. Any powered movement of the ROBOT or any of its MECHANISMS is not allowed during the transition period between AUTO and TELEOP.

*Violation: MAJOR FOUL, plus YELLOW CARD if subsequent violations during the event.*

Movement that occurs following the conclusion of an AUTO OpMode (due to inertia, gravity, or de-energizing of actuators, etc.) is not a violation of this rule.

Teams may press buttons on their DRIVER STATION app to initialize or start a TELEOP OpMode during the AUTO to TELEOP transition period. If the INIT portion of the OpMode causes the ROBOT to violate this rule (actuators moving or twitching in any way) then the team should wait until the TELEOP period begins before pressing INIT.

## Section 11.4.3 SCORING ELEMENT

**G408** \*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 another ROBOT). SCORING ELEMENTS that leave the FIELD are not returned to gameplay except as allowed in rule [G431](#).

*Violation: MAJOR FOUL per SCORING ELEMENT.*

SCORING ELEMENTS removed from the FIELD while attempting to score are not a violation of this rule, however, are not returned to the FIELD.

**G410** **SAMPLE or SPECIMEN at a time.** A ROBOT may not CONTROL more than 1 SAMPLE or 1 SPECIMEN at a time, either directly or transitively through other objects. There is no limit to the number of CLIPS a ROBOT may possess.

A ROBOT is in CONTROL of a SAMPLE or SPECIMEN if:

- A. the SAMPLE or SPECIMEN is fully supported by the ROBOT or
- B. it intentionally pushes a SAMPLE or SPECIMEN to a desired location or in a preferred direction (i.e., herding, often with a concave surface)

Exceptions to this rule are as follows:

- C. ROBOTS may MOMENTARILY exceed CONTROL limits while collecting SAMPLES that are in the SUBMERSIBLE ZONE.
- D. scored SAMPLES or SPECIMENS for the corresponding ALLIANCE are exempt from the CONTROL limit.

Violation: *MINOR FOUL per SCORING ELEMENT additional SAMPLE and/or SPECIMEN, plus YELLOW CARD if excessive.*

#### Section 11.4.4 ROBOT

**G418 Horizontal expansion limit.** After the MATCH has started, ROBOTS may expand beyond the STARTING CONFIGURATION but are still subject to sizing constraints (per [R401](#)). The sizing constraints are specified in [R401](#)).

**G419 Watch out for Humans.** A ROBOT may not:

- A. enter the OBSERVATION ZONE while a HUMAN PLAYER is in the OBSERVATION ZONE.
- B. contact a SCORING ELEMENT, either directly or transitively, that is controlled/possessed by a HUMAN PLAYER.

Violation: *MINOR FOUL per occurrence. YELLOW CARD if the ROBOT contacts the HUMAN PLAYER.*

**G419, G431, and G432** do not stack. Only One FOUL should be called per instance occurrence of the violation per ALLIANCE. For example, two FOULS would be called in the case where the ROBOT and HUMAN PLAYER are on separate ALLIANCES.

#### Section 11.4.5 Opponent Interaction

**G425 NET ZONE Protection.** A ROBOT may not contact (either directly or transitively through a SCORING ELEMENT CONTROLLED by either ROBOT, regardless of who initiates contact) an opponent ROBOT if any part of either ROBOT is in the opponent's NET ZONE.

Violation: *MAJOR FOUL per occurrence.*

#### Section 11.4.6 HUMAN

**G431 HUMAN PLAYERS manipulate SCORING ELEMENTS within limits.** Only the HUMAN PLAYER may introduce SCORING ELEMENTS into or retrieve SCORING ELEMENTS from the OBSERVATION ZONE.

- A. any number of SCORING ELEMENTS can be manipulated by the HUMAN PLAYER at a time.
- B. SCORING ELEMENTS may be placed in any orientation and/or in contact with other SCORING ELEMENTS.
- C. HUMAN PLAYERS may only place SCORING ELEMENTS into the OBSERVATION ZONE during the AUTO and TELEOP periods of the MATCH.
- D. HUMAN PLAYERS may not be in contact with a SCORING ELEMENT, either directly or transitively, that is possessed/controlled by a ROBOT.
- E. HUMAN PLAYERS may reintroduce SCORING ELEMENTS to the OBSERVATION ZONE that have left the FIELD as a result of a ROBOT attempting to collect it from the OBSERVATION ZONE or FIELD wall within the OBSERVATION ZONE, as long as no other rules are violated (e.g. rule G428).
- F. HUMAN PLAYERS may manipulate opposing ALLIANCE SCORING ELEMENTS that have been placed into their ALLIANCE'S OBSERVATION ZONE. The opposing ALLIANCE SCORING ELEMENTS may not be removed from the OBSERVATION ZONE, but may be moved within the OBSERVATION ZONE.

Violation: *MINOR FOUL per occurrence. YELLOW CARD if the HUMAN PLAYER contacts the ROBOT.*

SPECIMENS hung from the FIELD wall in the OBSERVATION ZONE are still considered in the OBSERVATION ZONE and may be manipulated by the HUMAN PLAYER.

[G419](#) and [G431](#) do not stack. One FOUL should be called per occurrence of the violation per ALLIANCE. For example, two FOULS would be called in the case where the ROBOT and HUMAN PLAYER are on separate ALLIANCES.

**G432 Watch out for ROBOTS.** A HUMAN PLAYER cannot break the vertical plane of the FIELD wall when a ROBOT is in the OBSERVATION ZONE. The only exceptions are:

- A. The ROBOT in the OBSERVATION ZONE has been declared DISABLED by a REFEREE.

*Violation: MINOR FOUL per occurrence. YELLOW CARD if the HUMAN PLAYER contacts the ROBOT.*

[G419](#), [G431](#), and [G432](#) do not stack. ~~Only One~~ FOUL should be called per instance occurrence of the violation per ALLIANCE. For example, two FOULS would be called in the case where the ROBOT and HUMAN PLAYER are on separate ALLIANCES.

## Section 12.5 Motors and Actuators

**R504 \*Do not modify actuators unless explicitly allowed.** The integral mechanical and electrical system of any motor or servo must not be modified. Motors and servos used on the ROBOT shall not be modified in any way, except as follows:

- A. the mounting brackets and/or output shaft/interface may be modified to facilitate the physical connection of the motor to the ROBOT and actuated part,
- B. the electrical leads may be trimmed to length as necessary and connectors or splices to additional wiring may be added (per [R503](#)), and purely electrical enclosures can be substituted with functionally equivalent replacements,
- C. servos may be modified as specified by the manufacturer (e.g., re-programming or modification for continuous rotation),
- D. minimal labeling may be applied to indicate device purpose, connectivity, functional performance, etc. as long as the team applied label does not obstruct the markings used to identify the device,
- E. insulation may be applied to electrical terminals,
- F. repairs, provided the original performance and specifications are unchanged, and
- G. maintenance recommended by the manufacturer.

## Section 12.6 Power Distribution

**R611 \*The ROBOT frame is not a wire.** All wiring and electrical devices shall be electrically isolated from the ROBOT frame. The ROBOT frame must not be used to carry electrical current. Electrically grounding the control system electronics to the frame of the ROBOT is only permitted such that all of the following conditions are met:

- A. must use one of the following approved parts:

*Table 0-2: Legal ROBOT Grounding Straps*

Grounding Strap	Part Number
AndyMark Resistive Grounding Strap	am-4648a
REV Resistive Grounding Strap	REV-31-1269
Swyft Grounding Cable	SR-Ground-01

**R618** \*Do not modify critical power paths. CUSTOM CIRCUITS shall not directly alter the power or control pathways between:

- A. the ROBOT battery and main power switch,
- B. the main power switch and a power regulating device (per [R609](#)),
- C. any two power regulating devices (per [R613](#)), or
- D. power regulating devices and actuators.

Custom high impedance voltage monitoring or low impedance current monitoring circuitry connected to the ROBOT'S electrical system is acceptable if the effect on power pathways is inconsequential.

Altering a power pathway includes, but is not limited to, altering the voltage of the power pathway using a boost (DC voltage step-up) or buck (DC voltage step-down) converter or otherwise altering the natural variable DC voltage provided by the ROBOT battery to create a constant DC voltage.

Devices that modify actuator control signals or power (except those allowed by [R505](#)) are prohibited, such as the goBILDA Servo Travel Tuner.

### Section 15 *FIRST* Championship

Award	Per Division	<i>FIRST</i> Championship
Inspire Award	1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> Place	1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> Place
Dean's List	0	10
Compass Award	0	1