

Team Update 02

General

General formatting fixes.

Competition Manual

Section 6.2.2 Think Award

Think Award Criteria		
Required	1	Team must submit a PORTFOLIO. The PORTFOLIO must include engineering content including which includes at least one of the following: A. evidence of use of the engineering process, B. lessons learned, C. trade off analysis /cost benefit analysis, and/or D. mathematical analysis used to make design decisions
Required	2	Team must be able to speak to the engineering content contained in their PORTFOLIO during the judging interview and/or pit interviews.
Encouraged	3	Team PORTFOLIO may include information about technical skill -resources including which includes any number of the following examples: A. how the team acquire new mentors, B. how the team learns from team mentors, and/or C. development plan for team members to learn new skills
Encouraged	4	PORTFOLIO information is organized in a clear and intuitive manner

Section 6.2.3 Connect Award

Connect Award Criteria		
Required	1	Team must describe, display, or document a team plan that covers all of the following: A. The team's goals for the development of team member skills, and B. The steps the team has taken or will take to reach those goals

Section 6.2.4 Motivate Award

Motivate Award Criteria		
Required	1	<p>Team must describe, display, or document an organizational plan including which includes at least one of the following examples:</p> <ul style="list-style-type: none"> A. team or organization goals, B. finances and financial sustainability plan, C. risk management planning, D. season timeline project planning, and/or E. outreach and service plan

Section 6.2.6 Control Award

Control Award Criteria		
Required	1	<p>Team must submit a PORTFOLIO. The PORTFOLIO must include all of the following:</p> <ul style="list-style-type: none"> A. hardware and/or software control components and systems on the ROBOT, B. which challenges each component or system is intended to solve, and C. how does each component or system work

Section 9.7.1 SAMPLES

- A SAMPLE is a 3.5 in. (8.9 cm) long by 1.5 in. (3.8 cm) wide by 1.5 in. (3.8 cm) high rectangular prism shaped SCORING ELEMENT. There are forty (40) yellow SAMPLES, twenty (20) red SAMPLES, and twenty (20) blue SAMPLES. A SAMPLE with a CLIP attached is no longer a SAMPLE and is now a SPECIMEN. An ALLIANCE SPECIFIC SAMPLE with a CLIP attached is no longer a SAMPLE and is now a SPECIMEN. A neutral SAMPLE with a CLIP attached is no longer a SAMPLE.

Section 9.7.2 CLIP

- The CLIP is a black plastic SCORING ELEMENT which is designed to be connected to an ALLIANCE SPECIFIC SAMPLE by a HUMAN PLAYER or ROBOT to create a SPECIMEN. The CLIP is a 2.5 in. (~6.4 cm) high by ~3.2 in. (~8.1 cm) long by 1 in. (~2.5 cm) wide .

Section 10.3.1 SCORING ELEMENTS

- From the SCORING ELEMENTS provided in D and E each ROBOT may be pre-loaded with either 1 SAMPLE or one SPECIMEN such that it is in contact with the ROBOT and not in the OBSERVATION ZONE or NET ZONE. SAMPLES or CLIPS not pre-loaded will remain in setup locations D and E.

Section 10.5 Scoring

- All accomplishments are tracked live by FIELD STAFF and certified at the end of the MATCH. Accomplishments are officially scored at the end of the each MATCH period based on the status of the FIELD, when all ROBOTS and SCORING ELEMENTS have come to rest, except as follows:

Section 10.5.1 SAMPLE Scoring Criteria

- A neutral SAMPLE with a CLIP attached in the NET ZONE or either the LOW or HIGH BASKETS have no score value.

Section 10.5.3 ROBOT Scoring Criteria

Additionally, the following conditions must be met:

- ROBOTS can only ASCEND their own ALLIANCE SPECIFIC RUNGS.
- ROBOTS must start ASCENDING from outside the SUBMERSIBLE ZONE.
- for a LEVEL 3 ASCENT, ROBOTS may not initiate contact with the HIGH RUNG while:
 - still supported by the TILES directly or transitively through another object (e.g., SCORING ELEMENTS or another ROBOT), or
 - supported by any other part of the SUBMERSIBLE structure except for the LOW RUNG
- ROBOTS that are eligible for multiple ASCENTS or ASCENT and PARKING points only earn points for the highest value achievement.

If any of the above conditions are not met, it is not a valid ASCENT. If a ROBOT does not meet ASCENT criteria, the ROBOT may disengage from the SUBMERSIBLE and attempt the ASCENT again.

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 minor elements used by the ROBOT to contact the RUNG. Once ROBOTS start their ASCENT, parts of the ROBOT 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 and attempt their LEVEL 3 ASCENT again.

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

Section 11.3 Pre-MATCH

G303 *ROBOTS on the FIELD must be set up to play a MATCH. A ROBOT must meet all following MATCH-start requirements:

- does not pose a hazard to humans, FIELD elements, or other ROBOTS.
- has passed inspection, i.e., it is compliant with all ROBOT rules.
- if modified after initial Inspection, it is compliant with [I304](#).
- is the only team-provided item left on the FIELD.
- is fully contained within the FIELD and not in the NET ZONE or OBSERVATION ZONE.
- touching the FIELD wall adjacent to the ALLIANCE AREA.

- G. not attached to, entangled with, or suspended from any FIELD element.
- H. confined to its STARTING CONFIGURATION (see [R101](#) and [R102](#)).
- I. in contact with no more than the allowed pre-load possession limit as described in section [10.3.1 SCORING ELEMENTS](#).
- J. ROBOT SIGNS must indicate the correct ALLIANCE color (see [R402](#)).

Section 11.4.1 AUTO

- G404 No AUTO opponent interference.** FIELD columns A, B, C constitute the blue side of the FIELD, and columns D, E, F (Figure 9-4) institute the red side of the FIELD. During AUTO ROBOTS may not:
- A. contact an opposing ALLIANCE'S ROBOT which is completely within the opposing ALLIANCE'S half of the FIELD.
 - B. contact a pre-set SAMPLE on the opposing ALLIANCE'S half of the FIELD.
 - C. move SCORING ELEMENTS onto the opposing ALLIANCE'S half of the FIELD outside of the SUBMERSIBLE ZONE.

Section 11.4.3 SCORING ELEMENT

- G406 *ROBOTS are motionless at the end of TELEOP.** ROBOTS must no longer be actively controlled by DRIVERS after the end of the TELEOP period. This can be done by a DRIVE TEAM member pressing the (■) stop button on the DRIVER STATION app or by discontinuing any operation of the ROBOT by the end of the MATCH period.
- G411 ROBOTS may not CONTROL the opposing ALLIANCE'S SPECIFIC SAMPLES or SPECIMENS.** ROBOTS may only have MOMENTARY CONTROL of opposing ALLIANCE SPECIFIC SAMPLES or SPECIMENS.
- Violation: MINOR FOUL per SCORING ELEMENT, plus an additional MINOR FOUL per opposing SCORING ELEMENT for each 5-second interval that the situation continues. A MAJOR PENALTY FOUL is applied for each SCORING ELEMENT that is scored while in CONTROL.*

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. The sizing constraints are specified in [R104](#)).

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

This rule is intended to limit the amount of floor area each ROBOT can cover with the maximum range of motion of all extensions. All possible movement of extensions outside the STARTING CONFIGURATION must be constrained within the horizontal size boundary assuming a stationary DRIVETRAIN resting normally on a flat surface as described in [R104](#).

During the MATCH REFEREES may use ARENA elements to help gauge ROBOT expansion during the MATCH. For example:

- A. TILES are approximately 24 in. (~61 cm)
- B. The RUNGS on the SUBMERSIBLE are 44.5 in. (~113 cm) wide

REFEREES that observe ROBOTS that are in violation of this rule may request the ROBOT be reinspected.

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.

Section 11.5 Post-MATCH

- G502 *Stop ROBOTS before entering the FIELD.** DRIVE TEAM members may not enter the FIELD to recover ROBOTS until:
- A. the head REFEREE has signaled it is okay to enter the field and
 - B. the DRIVE TEAM has pressed the (■) stop button on their DRIVER STATION app

Violation: Verbal warning plus YELLOW CARD if subsequent violations at any point during the event.

Section 12.1 General ROBOT Design

- R104 There is a horizontal expansion limit.** After the MATCH has started, ROBOTS may expand beyond the STARTING CONFIGURATION but are still subject to sizing constraints. The sizing constraints are:
- A. there is no vertical height limit relative to the TILE floor for ROBOT extensions,
 - B. the horizontal size boundary is a 20 in. x 42 in. (50.8 cm x 106.7 cm) rectangle measured parallel (coplanar) to the TILE floor,
 - C. the horizontal size boundary translates and rotates with the overall configuration of parallel (coplanar) to the TILE floor, with the CHASSIS of the ROBOT, which is the structural frame or base of a ROBOT that allows it to move and maneuver.
 - D. the maximum extent of all extensions of the ROBOT must be confined to the horizontal size boundary, with the ROBOT chassis remaining in the same relative location within the horizontal size boundary at all times (the location and orientation of the chassis within the horizontal size boundary is determined by the team), and
 - E. the horizontal size boundary as described in B is always parallel (coplanar) to the TILES, so ROBOTS which change orientation (drive, tip, roll, etc.) during the MATCH are still subject to the horizontal expansion limit measured parallel (coplanar) to the TILES.

Section 12.6 Power Distribution

- R616 *Use specified wire colors.** All non-SIGNAL LEVEL wiring with a constant polarity (i.e., except for outputs of motor controllers, or sensors) must use consistent color-coding with different colors used for the positive (red, yellow, white, brown, or black with white stripe) and negative/common (black, blue) wires. Integrated wires originally attached to legal COTS devices or wires included/sold by the manufacturer are considered part of the device and by default legal. Such wires are exempt from this rule.

Section 12.7 Control, Command & Signals System

R718 *Configure Android devices appropriately. ROBOT CONTROLLER and DRIVER STATION Android devices (smartphones, REV Control Hub, REV Driver Hub) must additionally be configured in the following ways:

- A. REV Control Hub users must [change the Wi-Fi password](#) to a non-default password,
- B. smartphone users must enable Airplane Mode,
- C. on ROBOT CONTROLLER and DRIVER STATION Android devices, Wi-Fi must be enabled and Bluetooth must be disabled,
- D. on smartphones and REV Driver Hub, remove all remembered Wi-Fi Direct Groups and Wi-Fi connections, leaving only the ROBOT CONTROLLER Wi-Fi connection.