



## Team Update 06

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### General Notes

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- **Q&A:** There are a high number of duplicate questions being asked in the Q&A. A duplicate question is one we believe has already been asked and has the same answer (regardless of whether the answer's already published or still pending). A deluge of duplicate questions clogs the Q&A resulting in delayed answers and consumes resources we could otherwise be dedicating to new questions. So, from this point forward, duplicate questions will be deleted. If your question has been deemed a duplicate and deleted, use the 'search' function to find your answer. If you still can't find your answer, ask again, and consider referencing a question that has already been answered with a 'In the answer to Question X, you said Y, but I am looking for clarification on situation Z' which will help the Q&A staff understand why what you're asking is a new inquiry.
- **Q82:** The answer to [Q82](#) has been updated to reflect the change to *Section 3.4.2 GEAR Sets* described below.
- **Field Tour Video:** [Alliance Station](#) depicts the dual light strings in the STEAMPIPE mounted back-to-back and vertically. The actual FIELDS will ship with a single strand facing up. A note will be added to the video's description.
- **Drawing Update:** *GE-17047, Carriage Assembly* has been updated in the [Field Components drawing package](#) to include previously omitted items 11 and 12 (collar and associated hardware) and update notes as needed.

### Section 3.2 FIELD

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There are two versions of GUARDRAILS and PLAYER STATIONS (i.e. the FIELD perimeter) used for competitions. One design has been used at *FIRST* Robotics Competition events for several years and is depicted in the [2017 Basic Field Drawings](#) and *FIRST* provided CAD models. The other is designed and sold by AndyMark. While the designs are slightly different, the critical dimensions, performance, and expected user experience between the two is the same. All Regional and Championship assemblies will use the traditional *FIRST* design (except for Shenzhen Regional and all *FIRST* Championship practice fields). Teams may contact their local District leadership for details on which assembly is used by their District. Detailed drawings for the AndyMark design are posted on the [AndyMark](#) website. All illustrations in this document depict the traditional FIELD design.

### Section 3.4 AIRSHIP

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The AIRSHIP is a structure that features an elevated hexagonal deck, slanted walls, rails with AXLES to mount GEARS, four (4) ROTORS, three (3) LIFTS, a STEAM TANK, and three (3) ROPES attached to DAVITS. There is one AIRSHIP at the edge of each LAUNCHPAD. The AIRSHIP is positioned such that the three (3) LIFTS face the ALLIANCE WALL. The maximum capacity of the AIRSHIP is two (2) people.

#### Section 3.4.2 GEAR Sets

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When a GEAR set for ROTORS 2, 3, or 4 is complete, a CRANK, a handle located with the first GEAR in the set, can be turned which engages the corresponding ROTOR. It takes three (3) full rotations to engage the ROTOR. If a GEAR set corresponding to the next sequential unengaged ROTOR remains idle for more than ten (10) seconds, the rotation count resets to zero (0).



## Section 3.9 TOUCHPAD

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The force required to activate the TOUCHPAD (i.e. push the TOUCHPAD plate up by approximately ½ in. (~1.3 cm), causing activation of one or more of its microswitches) is no more than 1 lb. (~½ kg).

The force required to move the TOUCHPAD throughout its full range of travel (i.e. cause the TOUCHPAD plate to travel the full 1½ in. (~4 cm)) is no more than 2 lbs. (~1 kg).

While a force less than 75 lbs (~34 kg) applied to the TOUCHPAD plate once it's fully pressed is not likely to damage the TOUCHPAD, be aware that any damage, even if a result of less than 75 lbs of pressure, is a violation of G15.

## Section 7.4 FIELD Interaction

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**G15. Be careful about what you grab on to.** DRIVE TEAMS, ROBOTS, and OPERATOR CONSOLES are prohibited from the following actions with regards to interaction with ARENA elements.

Items A and B exclude DRIVE TEAM interaction with FIELD elements in their areas.

Item C excludes use of the PLAYER STATION hook-and-loop tape, plugging in to the provided power outlet, and plugging the provided Ethernet cable in to the OPERATOR CONSOLE.

Items A-E exclude GAME PIECES.

Items A-G exclude ROPES installed on an ALLIANCE'S AIRSHIP.

Items A-H exclude a ROBOT'S interaction with a Team supplied ROPE that doesn't litter the FIELD.

- A. Grabbing
- B. Grasping
- C. Attaching to (including the use of hook-and-loop tape against the FIELD carpet)
- D. Grappling
- E. Hanging
- F. Deforming
- G. Becoming entangled
- H. Damaging

Violation: If prior to MATCH, and situation can be corrected quickly, it must be remedied before the MATCH will start. If during a MATCH, FOUL. If during a MATCH and extended or repeated, YELLOW CARD. If offense is via a ROBOT and the Head REFEREE determines that further damage is likely to occur, offending ROBOT will be DISABLED. 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.

GAME PIECES are expected to undergo a reasonable amount of wear and tear as they are handled by ROBOTS, such as scratching or marking. Gouging, tearing off pieces, or routinely marking GAME PIECES are violations of this rule. Humans causing GAME PIECE wear and tear, e.g. flattening FUEL, are subject to a CARD per [Section 10.7 YELLOW and RED CARDS](#).

A ROBOT that has only unseated the TOUCHPAD dome has not damaged the FIELD.



## Section 8.3 ROBOT Safety & Damage Prevention

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**R06.** Protrusions from the ROBOT and exposed surfaces on the ROBOT shall not pose hazards to the ARENA elements (including the GAME PIECES and excluding a Team supplied ROPE) or people.

## Section 9 Inspection & Eligibility

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**104. D.** consist entirely of flexible, non-metallic fibers sewn, twisted, tied, woven, knitted, crocheted, intertwined, or braided together except for the last 4 in. (~10 cm) of any cut end (E) which may be whipped (with material that is flexible and non-metallic) or fused only to prevent fraying.