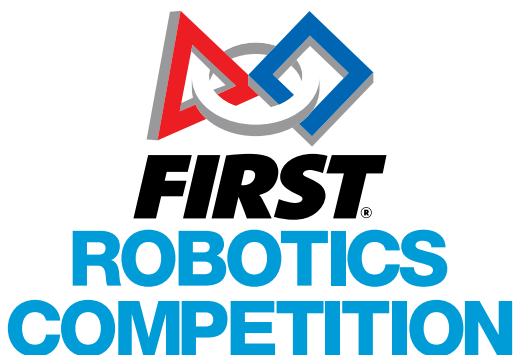


5

Tournament

5.1	Overview.....	3
5.1.1	MATCH Schedules	3
5.2	Practice MATCHES	4
5.2.1	Schedule.....	4
5.2.2	Filler Line	4
5.3	Qualification MATCHES	4
5.3.1	Schedule.....	4
5.3.2	MATCH Assignment	4
5.3.3	Ranking Score (RS)	5
5.3.4	Qualification Seeding.....	5
5.4	Playoff MATCHES	6
5.4.1	ALLIANCE Selection Process.....	6
5.4.2	BACKUP TEAMS.....	7
5.4.3	Playoff MATCH Bracket.....	7
5.4.4	Playoff Scoring	9

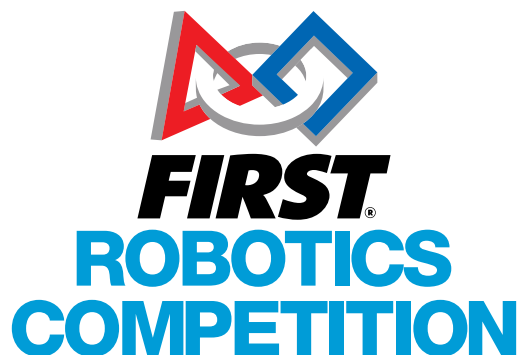


FIRST®, the FIRST® logo, FIRST® Robotics Competition, Coopertition®, Gracious Professionalism® are registered trademarks, and Sport for the Mind™ and FIRST STRONGHOLD™ are common law trademarks, of the United States Foundation for Inspiration and Recognition of Science and Technology (FIRST®). ©2016 FIRST®. All rights reserved.

5

Tournament

5.5	Tournament Rules	9
5.5.1	Safety, Security, and Conduct Rules	9
5.5.2	Eligibility and Inspection	11
5.5.3	REFEREE Interaction	14
5.5.4	YELLOW and RED CARDS	14
5.5.5	MATCH Replays	15
5.5.6	TIMEOUT and BACKUP TEAM Rules	16
5.5.7	Pit Crews	18
5.5.8	Measurement	18
5.5.9	Special Equipment Rules	18
5.5.10	Selecting Defenses	19
5.6	Championship Additions and Exceptions	22
5.6.1	Four ROBOT ALLIANCES	22
5.6.2	Championship Pit Crews	23
5.6.3	FIRST Robotics Competition Championship MATCH Bracket	24



FIRST®, the FIRST® logo, FIRST® Robotics Competition, Coopertition®, Gracious Professionalism® are registered trademarks, and Sport for the Mind™ and FIRST STRONGHOLD™ are common law trademarks, of the United States Foundation for Inspiration and Recognition of Science and Technology (FIRST®). ©2016 FIRST®. All rights reserved.

5 TOURNAMENT

*FIRST STRONGHOLD*SM is a medieval tower defender game in which two (2) ALLIANCES of three (3) Teams each select DEFENSES to fortify their OUTER WORKS before competing simultaneously to score points while BREACHING the opponent's OUTER WORKS and CAPTURING the opponent's TOWER.

5.1 Overview

Each 2016 *FIRST* Robotics Competition event is played in a tournament format. Each tournament consists of three sets of MATCHES called “Practice MATCHES” (not necessarily at all District Events), “Qualification MATCHES,” and “Playoff MATCHES.”

Practice MATCHES provide each Team with an opportunity to operate its ROBOT on the FIELD prior to the start of the Qualification MATCHES.

Qualification MATCHES allow each Team to earn a seeding position that may qualify them for participation in the Playoff MATCHES.

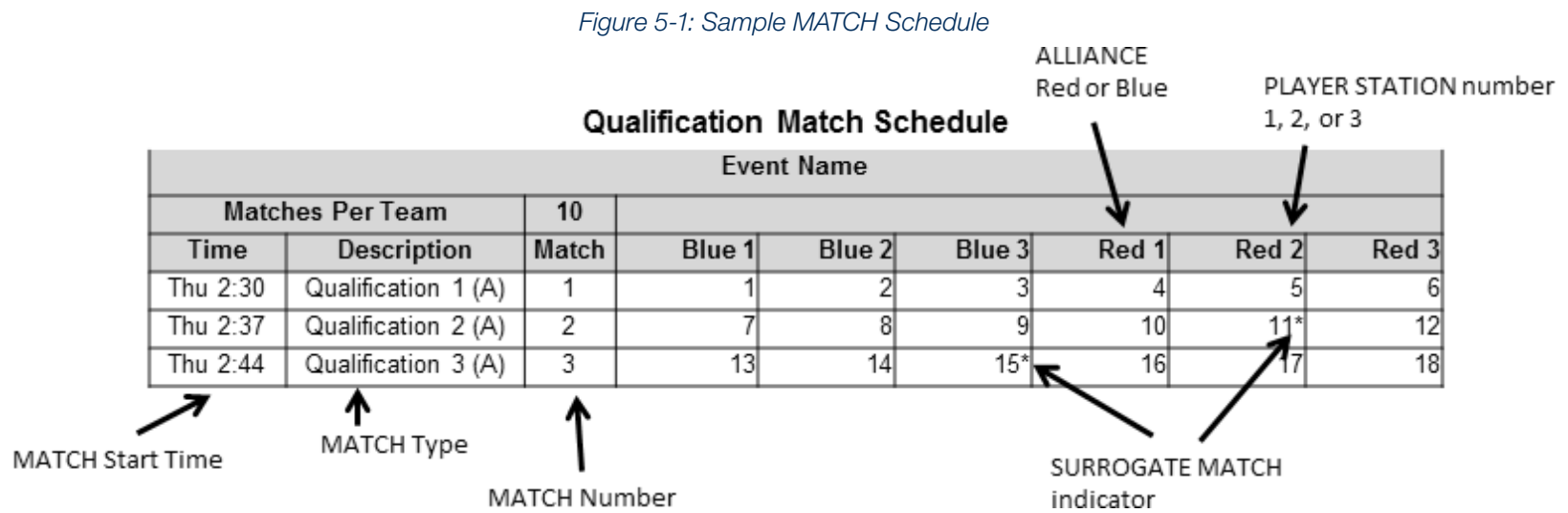
Playoff MATCHES determine the event Champions.

Each MATCH period consists of two (2) minutes and thirty (30) seconds of game play, as well as pre and post-MATCH time for setup and to Reset the ARENA. During ARENA Reset, the ARENA is cleared of ROBOTS and OPERATOR CONSOLES from the MATCH that just ended. The ROBOTS and OPERATOR CONSOLES for the following MATCH must be placed in position and ready to operate before the start of the next MATCH. FIELD STEWARDS will reset the ARENA elements during this time.

If order placement of ROBOTS matters to either or both ALLIANCES, the ALLIANCE must notify the Head REFEREE (an official who is certified by *FIRST* to enforce the rules of *FIRST STRONGHOLD*) during setup for that MATCH. Upon notification, the Head REFEREE will require ALLIANCES to alternate placement of their ROBOTS, starting with the Red ALLIANCE.

5.1.1 MATCH Schedules

A MATCH schedule is used to coordinate MATCHES at an Event. [Figure 5-1](#) details information shown on each Schedule.



5.2 Practice MATCHES

5.2.1 Schedule

Practice MATCHES are played on the first day of each event. The Practice MATCH schedule is available as soon as possible, but no later than the start of Practice MATCHES. Practice MATCHES are randomly assigned, and teams may not switch scheduled Practice MATCHES. Each Team is assigned an equal number of Practice MATCHES unless the number of Teams multiplied by number of Practice MATCHES is not divisible by six. In this case, the FIELD Management System (FMS) randomly selects some Teams to play an extra Practice MATCH.

Practice MATCHES are not guaranteed at District Events.

5.2.2 Filler Line

A Filler Line is used to fill open slots at events that employ scheduled Practice MATCHES, or all slots at events with an open Practice MATCH schedule.

Teams wanting additional Practice MATCHES may join the Filler Line if the criteria listed below are met. Teams from the Filler Line are used on a first come, first served basis to fill empty spots in Practice MATCHES left by other Teams that do not report to Queueing. The number of Teams in the Filler Line is dependent upon space at venues. The criteria for joining the Filler Line are as follows:

- A. ROBOTS in the Filler Line must have passed Inspection (this requirement may be waived for events with open Practice MATCH schedules);
- B. DRIVE TEAMS must join the Filler Line with their ROBOT;
- C. Teams may not work on their ROBOT while in the Filler Line;
- D. Teams may not occupy more than one spot in the Filler Line; and
- E. If a Team is queued up for their Practice MATCH, they may not also join the Filler Line.

5.3 Qualification MATCHES

5.3.1 Schedule

The Qualification MATCH schedule is made available as soon as possible, but no later than one (1) hour before Qualification MATCHES are scheduled to begin. Each Qualification schedule consists of a series of rounds in which each team plays one (1) MATCH per round.

5.3.2 MATCH Assignment

FMS assigns each Team two (2) ALLIANCE partners for each Qualification MATCH using a predefined algorithm, and teams may not switch Qualification MATCH assignments. The algorithm employs the following criteria, listed in order of priority:

1. Maximize time between each MATCH played for all Teams
2. Minimize the number of times a Team plays opposite any Team

3. Minimize the number of times a Team is allied with any Team
4. Minimize the use of SURROGATES (Teams randomly assigned by the FMS to play an extra Qualification MATCH)
5. Provide even distribution of MATCHES played on Blue and Red ALLIANCE

All Teams are assigned the same number of Qualification MATCHES, equal to the number of rounds, unless the number of Teams multiplied by number of MATCHES is not divisible by six. In this case, the FMS randomly selects some Teams to play an extra MATCH. For the purpose of seeding calculations, those Teams are designated as SURROGATES for the extra MATCH. If a Team plays a MATCH as a SURROGATE, it is indicated on the MATCH schedule, it is always their third Qualification MATCH, and the outcome of the MATCH has no affect on the Team's ranking. YELLOW and RED CARDS assigned to SURROGATES do carry forward to subsequent MATCHES.

5.3.3 Ranking Score (RS)

Ranking Points are units credited to a Team based on their ALLIANCES' performance in Qualification MATCHES. Ranking Points are awarded to each eligible Team at the completion of each Qualification MATCH:

- A. Each Team on the winning ALLIANCE receives two (2) Ranking Points.
- B. Each Team on the losing ALLIANCE receives zero (0) Ranking Points.
- C. In the event of a tied score, all Teams receive one (1) Ranking Point.
- D. Each Team on an ALLIANCE that CAPTURES a TOWER receives one (1) Ranking Point.
- E. Each Team on an ALLIANCE that BREACHES the OUTER WORKS receives one (1) Ranking Point.

Exceptions to A-E are as follows:

- F. A SURROGATE receives zero (0) Ranking Points.
- G. A DISQUALIFIED Team, as determined by the Head REFEREE, receives zero (0) Ranking Points in a Qualification MATCH or causes their ALLIANCE to receive zero (0) MATCH points in a Playoff MATCH.
- H. A "no-show" Team is DISQUALIFIED from that MATCH. A Team is declared a no-show if no member of the DRIVE TEAM is in the CASTLE or the SPY BOX at the start of the MATCH.

The total number of Ranking Points earned by a Team throughout their Qualification MATCHES is their Ranking Score (RS).

5.3.4 Qualification Seeding

All Teams participating in the Tournament are seeded during the Qualification MATCHES. If the number of Teams in attendance is 'n', they are seeded '1' through 'n', with '1' being the highest seeded Team and 'n' being the lowest seeded Team.

FMS ranks all Teams in decreasing order, using the following sorting criteria:

Table 5-1: Qualification MATCH Ranking Criteria

Order Sort	Criteria
1 st	Ranking Score
2 nd	Cumulative sum of AUTO points
3 rd	Cumulative sum of scored SCALE and CHALLENGE points
4 th	Cumulative sum of High and Low GOAL points from AUTO and TELEOP
5 th	Cumulative sum of CROSSED UNDAMAGED DEFENSE points (AUTO and TELEOP)
6 th	Random sorting by the FMS

5.4 Playoff MATCHES

At the end of the Qualification MATCHES, the top eight (8) seeded Teams become the ALLIANCE Leads. The top seeded ALLIANCES are designated, in order, ALLIANCE One, ALLIANCE Two, etc., down to ALLIANCE Eight. Using the ALLIANCE selection process described below, each ALLIANCE Lead chooses two (2) other Teams to join their ALLIANCE.

If a Team declines the ALLIANCE Lead position or doesn't send a student representative for ALLIANCE selection, they are ineligible to participate in the Playoff Tournament. If the declining/absent Team would have been an ALLIANCE Lead, all lower ranked ALLIANCE Leads are promoted one spot. The next highest-seeded Team moves up to become the ALLIANCE Eight Lead.

5.4.1 ALLIANCE Selection Process

Each Team chooses a student Team representative who proceeds to the ARENA at the designated time (typically before the lunch break on the final day of the event) to represent their Team. The designated student representative from each ALLIANCE in a Playoff MATCH is called the ALLIANCE CAPTAIN.

The ALLIANCE selection process consists of two (2) rounds during which each ALLIANCE CAPTAIN invites a Team seeded below them in the standings to join their ALLIANCE. The invited Team must not already have declined an invitation.

Round 1: In descending order (ALLIANCE One to ALLIANCE Eight), each ALLIANCE CAPTAIN invites a single Team. The invited Team's representative steps forward and either accepts or declines the invitation.

If the Team accepts, it becomes a member of that ALLIANCE. If an invitation from a top eight ALLIANCE to another ALLIANCE Lead is accepted, all lower ALLIANCE Leads are promoted one spot. The next highest-seeded, unselected Team moves up to become the ALLIANCE Eight Lead.

If the Team declines, that Team is not eligible to be picked again or to be a BACKUP TEAM (see [Section 5.4.2 BACKUP TEAMS](#)), and the ALLIANCE CAPTAIN extends another invitation to a different Team. If an invitation from a top eight ALLIANCE to another ALLIANCE Lead is declined, the declining Team may still invite Teams to join their ALLIANCE; however, it cannot accept invitations from other ALLIANCES.

The process continues until ALLIANCE Eight makes a successful invitation.

Round 2: The same method is used for each ALLIANCE CAPTAIN'S second choice except the selection order is reversed, with ALLIANCE Eight picking first and ALLIANCE One picking last. This process results in eight (8) ALLIANCES of three (3) Teams each.

Of the remaining eligible Teams, the highest seeded Teams (up to eight (8)) should remain on standby and be ready to play as a BACKUP TEAM.

5.4.2 BACKUP TEAMS

In the Playoff MATCHES, it may be necessary for an ALLIANCE to replace one of its members due to a faulty ROBOT. ROBOT faults include but are not limited to:

1. Damaged mechanicals,
2. Electrical issues,
3. Software problems

In this situation, the ALLIANCE CAPTAIN has the option to invite the highest seeded eligible Team from the pool of available Teams to join its ALLIANCE. The Team who's ROBOT and DRIVE TEAM replaces another ROBOT and DRIVE TEAM on an ALLIANCE during the Playoff MATCHES is called the BACKUP TEAM.

The resulting ALLIANCE is then composed of four (4) Teams. The replaced Team remains a member of the ALLIANCE for awards, but cannot return to play, even if their ROBOT is repaired.

Each ALLIANCE is allotted one (1) BACKUP TEAM Coupon during the Playoff MATCHES. If a second ROBOT from the ALLIANCE becomes inoperable, then the ALLIANCE must play the following MATCHES with only two (2) (or even one (1)) ROBOTS.

Example: Three (3) Teams, A, B and C, form an ALLIANCE going into the Playoff MATCHES. The highest seeded Team not on one of the eight (8) ALLIANCES is Team D. During one of the Playoff MATCHES, Team C's ROBOT suffers damage to its mechanical arm. The ALLIANCE CAPTAIN decides to bring in Team D to replace Team C. Team C and their ROBOT are not eligible to play in any subsequent Playoff MATCHES. The new ALLIANCE of Teams A, B, and D are successful in advancing to the Finals and win the event. Teams A, B, C, and D are all recognized as members of the Winning Alliance and receive awards.

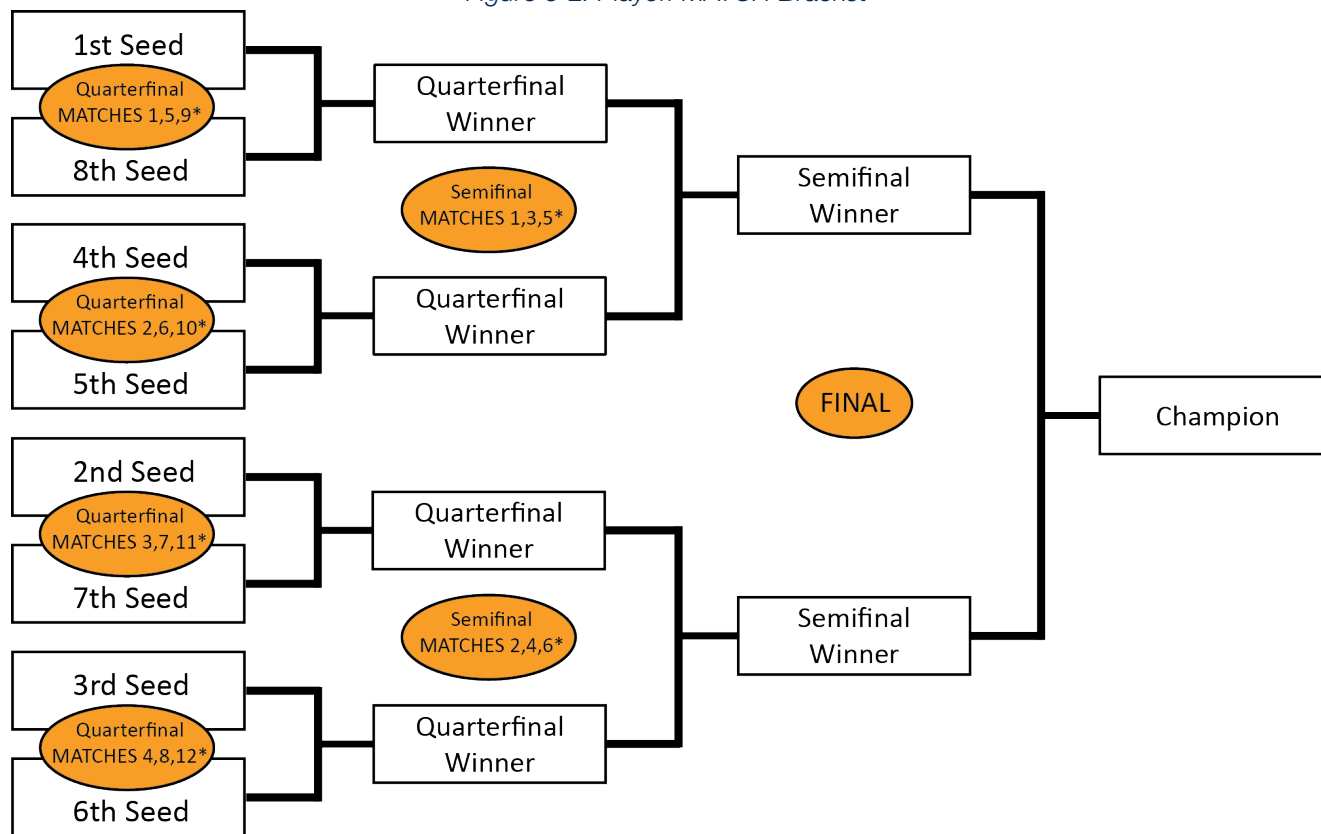
In the case where a BACKUP TEAM is part of the Winning or Finalist ALLIANCE, there will be a four (4)-Team Winning or Finalist ALLIANCE.

5.4.3 Playoff MATCH Bracket

The Playoff MATCHES take place following the completion of the Qualification MATCHES and the ALLIANCE selection process. Playoff MATCHES are played in a bracket format as shown in [Figure 5-2](#).

The higher seeded ALLIANCE will always be assigned to the Red side of the FIELD. Additionally, ALLIANCE CAPTAINS will always be assigned to the center PLAYER STATION, the first pick will be assigned to the station to their left while they're facing the FIELD, and the second pick will be assigned to their right while they're facing the FIELD. If a BACKUP TEAM is in play, they will be assigned to the PLAYER STATION that was assigned to the DRIVE TEAM they're replacing.

Figure 5-2: Playoff MATCH Bracket



*If necessary

In order to allow time between MATCHES for all ALLIANCES and the selection of DEFENSES, the order of play is as follows:

Table 5-2: Playoff Order and Audience DEFENSE Selection Timing

Quarterfinal Round 1	Quarterfinal Round 2	Quarterfinal Round 3	Semifinals	Finals
Audience selects DEFENSES per 5.5.10.1 ¹	Audience selects DEFENSES per 5.5.10.1 ¹	Same Group selection as Quarterfinal Round 2	Audience selects DEFENSES per 5.5.10.1 ¹	Audience selects DEFENSES per 5.5.10.1 ¹
Quarterfinal 1 (1 vs.8)	Quarterfinal 5 (1 vs.8)	Quarterfinal Tiebreaker 1 ²	Semifinal 1	Final 1
Quarterfinal 2 (4 vs.5)	Quarterfinal 6 (4 vs.5)	Quarterfinal Tiebreaker 2 ²	Semifinal 2	FIELD TIMEOUT
Quarterfinal 3 (2 vs.7)	Quarterfinal 7 (2 vs.7)	Quarterfinal Tiebreaker 3 ²	Semifinal 3	Final 2
Quarterfinal 4 (3 vs.6)	Quarterfinal 8 (3 vs.6)	Quarterfinal Tiebreaker 4 ²	Semifinal 4	FIELD TIMEOUT
FIELD TIMEOUT ²	FIELD TIMEOUT ²	FIELD TIMEOUT ²	Semifinal Tiebreaker 1 ²	Final Tiebreaker ²
		Any Replays due to ties ²	Semifinal Tiebreaker 2 ²	FIELD TIMEOUT ²
			FIELD TIMEOUT ²	Any Replays due to ties ²
			Any Replays due to ties ²	

¹ Specific group determined by FMS

² if required

5.4.4 Playoff Scoring

In the Playoff MATCHES, Teams do not earn Ranking Points; they earn a Win, Loss or Tie. Within each series of the Playoff MATCH bracket, the first ALLIANCE to win two (2) MATCHES will advance.

In the case where the MATCH score of each ALLIANCE is equal, the tie is broken using the following criteria:

Table 5-3: Playoff MATCH Tiebreakers

Order Sort	Criteria
1 st	Fewest number of FOUL points awarded (i.e. the ALLIANCE that played the cleaner MATCH)
2 nd	Cumulative sum of BREACH and CAPTURE points
3 rd	Cumulative sum of scored AUTO points
4 th	Cumulative sum of scored SCALE and CHALLENGE points
5 th	Cumulative sum of scored TOWER GOAL points (High and Low goals from AUTO and TELEOP)
6 th	Cumulative sum of CROSSED UNDAMAGED DEFENSE points (AUTO and TELEOP)
7 th	Replay the MATCH

5.5 Tournament Rules

5.5.1 Safety, Security, and Conduct Rules

- T1** Safety is paramount at all times during the Tournament. Event staff have the final decision authority for all safety-related issues within the venue. All event attendees must wear safety glasses and closed-toed shoes while in the ARENA.
- T2** Wireless ROBOT control is only permitted on the FIELD or Practice Field. ROBOTS must be operated by tether when outside the FIELD or Practice Field.
- T3** If operating wirelessly on the Practice Field, ROBOTS must use the provided Practice Field radio for communication.
- T4** Teams may not set up their own 802.11a/b/g/n/ac (2.4GHz or 5GHz) wireless communication (e.g. access points or ad-hoc networks) in the venue.

A wireless hot spot created by a cellular device is considered an access point.

- T5** No Team or Team member shall interfere or attempt to interfere with any other Team's or FIRST's wireless communication. Except as expressly allowed for purposes of communicating with the Team's own ROBOT on the FIELD or a Practice Field, no Team or Team member shall connect or attempt to connect to any other Team's or FIRST's wireless network.

Violation: Behavior will be discussed with Team or individual. Violations of this rule are likely to escalate rapidly to YELLOW or RED CARDS, and may lead to dismissal from the event (i.e. the threshold for egregious or repeated violations is relatively low.) Legal action may also be pursued based on applicable law.

Teams are encouraged to report suspected wireless security vulnerabilities to the FIRST Technical Advisor (FTA) if at the event or to FIRST via the [Wireless Security Feedback Form](#)

- T6** All Teams must be civil towards their own Team members, other Teams, competition personnel, FIELD staff, and event attendees while at an FIRST Robotics Competition event.

Violation: Behavior will be discussed with Team or individual. Violations of this rule are likely to escalate to YELLOW or RED CARDS rapidly (i.e. the threshold for egregious or repeated violations is relatively low.)

Examples of incivility include, but are not limited to, use of offensive language or bullying behavior.

- T7** 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 ALLIANCE members are participants.

Violation: Behavior will be discussed with Team or individual. Violations of this rule are likely to escalate rapidly to YELLOW or RED CARDS, and may lead to dismissal from the event (i.e. the threshold for egregious or repeated violations is relatively low.)

Example #1: A MATCH is being played by Teams A, B, and C, in which Team C is encouraged by Team D to not SCALE or CHALLENGE the TOWER resulting in Teams A, B, and C not earning a Ranking Point for that achievement. 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.

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.

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.

- T8** 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: Behavior will be discussed with Team or individual and may include dismissal from the event. If egregious or repeated, YELLOW or RED CARD.

Example #1: A MATCH is being played by Teams A, B, and C. Team D requests Team C to not SCALE or CHALLENGE the TOWER resulting in Teams A, B, and C not earning a Ranking Point for that achievement. 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.

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 to not participate in the MATCH so that Team D gains ranking position over Teams B and C.

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.

- T9** If brought to the ARENA, the Team STANDARD must be constructed to the [Team Standard Specification](#) and installed such that
- A. its vertical support is in the STANDARD holder in the PLAYER STATION to which the Team is assigned, as indicated on the Team sign and,
 - B. oriented with its horizontal support piece parallel to the CASTLE WALL
- Violation: The MATCH will not start until the situation is corrected or the Team STANDARD is removed from the ARENA.*
- T10** During a MATCH, the Team STANDARD may not be touched by any member of the ALLIANCE
- Violation: FOUL, an exception is given for a Team STANDARD which is damaged and/or dangling in front of a DRIVE TEAM*
- T11** The OPERATOR CONSOLE must be used in the PLAYER STATION to which the Team is assigned, as indicated on the Team sign.
- Violation: The MATCH will not start until the situation is corrected. If during a MATCH, YELLOW CARD.*

One intent of **T11** is to prevent unsafe situations where long tethers to OPERATOR CONSOLE devices increase tripping hazards as the operator moves about the CASTLE. In the interest of avoiding nuisance penalties associated with an operator 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 CASTLE. Provided the operator is within close proximity of their PLAYER STATION, there will be no repercussions. However, if an operator is located more than approximately $\frac{1}{2}$ PLAYER STATION width away from their own PLAYER STATION, that would be considered a violation of **T11**.

5.5.2 Eligibility and Inspection

This section describes the rules governing MATCH participation. A Team has participated in a MATCH if any member of their DRIVE TEAM is in the CASTLE or the SPY BOX, with or without the ROBOT on the FIELD, at the start of the MATCH.

At each event, the Lead ROBOT Inspector (LRI) has final authority on the legality of any COMPONENT, MECHANISM, or ROBOT. Inspectors may re-Inspect ROBOTS to ensure compliance with the rules.

ROBOTS are permitted to participate in scheduled Practice MATCHES prior to passing Inspection. However, the *FIRST* Technical Advisor (FTA), LRI or Head REFEREE may determine at any time that the ROBOT is unsafe, per [Section 3 \(3.4.1 Safety Rules\)](#), and may prohibit further participation in Practice MATCHES until the condition is corrected and the ROBOT passes Inspection.

Prior to the start of a MATCH, any ROBOT which is unable or ineligible to participate in that MATCH as determined by the FTA, LRI, or Head REFEREE is declared to be BYPASSED and is DISABLED. A Team who's ROBOT is BYPASSED remains eligible to receive Qualification Ranking Points or Playoff MATCH points provided that its ROBOT has passed Inspection, per [T12](#).

Each registered *FIRST* Robotics Competition team may enter only one (1) ROBOT (or 'Robot', which to a reasonably astute observer, is a Robot built to play *FIRST* STRONGHOLD) into the 2016 *FIRST* Robotics Competition.

This rule does not prohibit teams from bringing in *FIRST* LEGO® League or *FIRST* Tech Challenge robots for the purposes of awards presentations or pit displays.

T12 A Team is only permitted to participate in a Qualification or Playoff MATCH and receive Ranking or MATCH Points respectively if their ROBOT has passed an initial, complete Inspection.

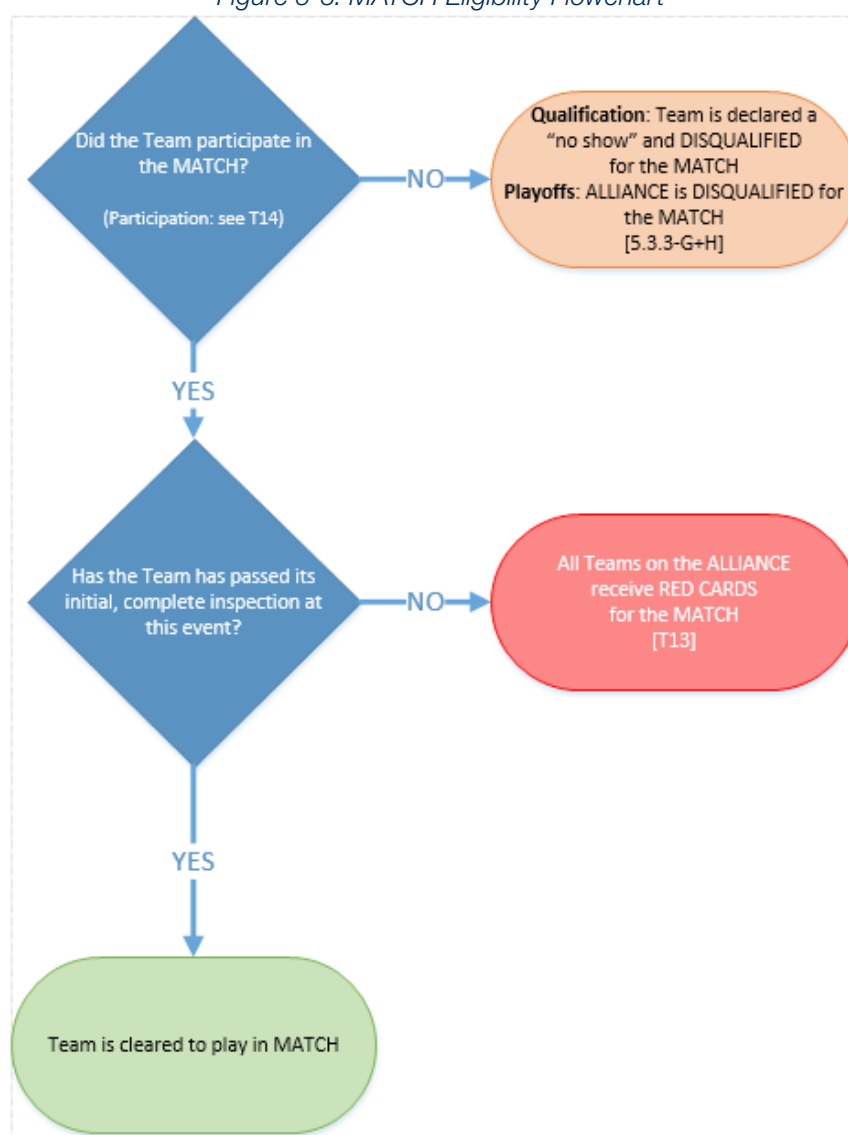
Violation: If prior to the start of the MATCH, the Team is not eligible to participate in the MATCH. If after the start of the MATCH, the entire ALLIANCE receives a RED CARD for that MATCH.

Please take note of this rule. It is important that *FIRST* Robotics Competition Teams ensure their ALLIANCE partners have passed Inspection. Allowing a partner that has not passed Inspection to play puts the ALLIANCE at risk of DISQUALIFICATION. Teams should check with their ALLIANCE partners early, and help them pass Inspection before competing.

T13 Each Team must send at least one (1) member of its DRIVE TEAM to the FIELD and participate in each of the Team's assigned Qualification and Playoff MATCHES. The Team should inform the Lead Queuer if the Team's ROBOT is not able to participate.

Violation: RED CARD, with the exception of a Team that has not passed Inspection, per [T12](#).

Figure 5-3: MATCH Eligibility Flowchart



T14 At the time of Inspection, the ROBOT must be presented with all MECHANISMS (including all COMPONENTS of each MECHANISM), configurations, and decorations that will be used on the ROBOT during the competition event. It is acceptable, however, for a ROBOT to play MATCHES with a subset of the MECHANISMS that were present during Inspection. Only MECHANISMS that were present during the Inspection may be added, removed or reconfigured between MATCHES. If MECHANISMS are changed between MATCHES the reconfigured ROBOT must still meet all Inspection criteria.

T15 If a ROBOT is modified after it has passed its most recent Inspection, other than modifications listed in A through F, that ROBOT must be re-Inspected before the ROBOT is eligible to participate in a MATCH. If any of the exceptions listed below result in a significant change to the ROBOT'S size, weight, legality, or safety, the ROBOT must be re-Inspected. When in doubt, the Team should ask to be re-Inspected.

- A. Addition, relocation, or removal of fasteners (e.g. cable ties, tape, and rivets)
- B. Addition, relocation, or removal of labeling or marking
- C. Revision of ROBOT code
- D. A replacement of a COTS component with an identical COTS component
- E. A replacement of a MECHANISM with an identical MECHANISM (size, weight, material)
- F. Additions, removals, or reconfiguration of ROBOT with a subset of MECHANISMS already Inspected per [T14](#).

Example 1: Team A's ROBOT has passed Inspection, but burns out a motor controller during a MATCH. Team A replaces it with an identical motor controller. Team A does not have to get their ROBOT re-Inspected per exception [T15-D](#).

Example 2: Team B would like to add weight to their ROBOT to lower their center of gravity. Team B adds a large amount of fasteners to their ROBOT as ballast. Team B must get their ROBOT re-Inspected because they have significantly changed their weight per [T15](#).

Example 3: Team D has decided to move their motor controller to a different location on their ROBOT, and must use a different length wire to make the proper connections. Team D must get their ROBOT re-Inspected because rewiring is not an exception in [T15](#).

Example 4: Team E decides to relocate their battery on their ROBOT to change their center of gravity. Team E must be re-Inspected as the relocation of COMPONENTS or MECHANISMS is not an exception [T15](#).

Example 5: Team F realizes they can gain necessary functionality by building a new MECHANISM at an event and adding it to their ROBOT. Their ROBOT must be re-Inspected.

If an observation is made that another Team's ROBOT may be in violation of the ROBOT rules, please approach *FIRST* officials to review the matter in question. This is an area where *Gracious Professionalism*® is very important.

Note that Inspectors will prioritize teams that have not yet completed initial inspection. While every effort will be made to re-inspect Teams in a timely manner, Teams need to consider that they will need to play with the previously inspected configuration if re-inspection cannot be completed before a MATCH. Teams should work with Inspectors when making changes to minimize the chance of this occurring

- T16** The ROBOT Cost Accounting Worksheet (CAW), listing all items on the ROBOT except those listed in [R10](#) and their relevant costs per [Section 4 \(4.4 Budget Constraints\)](#), must be presented at the time of Inspection.

Teams are encouraged to use the CAW Template posted on the *FIRST* website. Please note that while CAWs must be shown to Inspectors, Teams are not required to submit their CAWs to the Inspectors.

- T17** During the event, from load-in on the first day to load-out on the final day, Teams may only produce FABRICATED ITEMS in the pit areas or provided machine shops, as defined in the “Administrative Manual,” [Section 4 \(4.7.4 Team Pits\)](#), and per [R18](#) in [Section 4 \(4.6 Material Utilization\)](#).
- T18** For the safety of all those involved, Inspections must take place with the ROBOT powered off, pneumatics unpressurized, and springs or other stored energy devices in their lowest potential energy states (e.g. battery removed).

Power and air pressure should only be enabled on the ROBOT during those portions of the Inspection process where it is absolutely required to validate certain system functionality and compliance with specific rules (firmware check, etc.). Inspectors may allow the ROBOT to be powered up beyond the parameters above if both criteria below are met.

- A. The ROBOT design requires power or a charged stored energy device in order to confirm that the ROBOT meets volume requirements, and
- B. The Team has included safety interlocks that mitigate unexpected release of such stored energy.

5.5.3 REFEREE Interaction

The Head REFEREE has the ultimate authority in the ARENA during the event, but may receive input from additional sources, e.g. Game Designers, *FIRST* personnel, FTA, and technical staff. The Head REFEREE rulings are final. No event personnel, including the Head REFEREE, will review video, photos, artistic renderings, etc. of any MATCH, from any source, under any circumstances.

- T19** If a DRIVE TEAM needs clarification on a ruling or score, one (1) pre-college student from that DRIVE TEAM should address the Head REFEREE after the ARENA Reset Signal (e.g. PLAYER STATION LED strings turn green). A DRIVE TEAM member signals their desire to speak with the Head REFEREE by standing in the corresponding Red or Blue Question Box, which are located on the floor near each end of the scoring table. Depending on timing, the Head REFEREE may postpone any requested discussion until the end of the subsequent MATCH.

5.5.4 YELLOW and RED CARDS

In addition to rule violations explicitly listed in [Section 3 \(3.4 Rules\)](#), YELLOW CARDS and RED CARDS are used in *FIRST* Robotics Competition to manage Team and ROBOT behavior that does not align with the mission of *FIRST*.

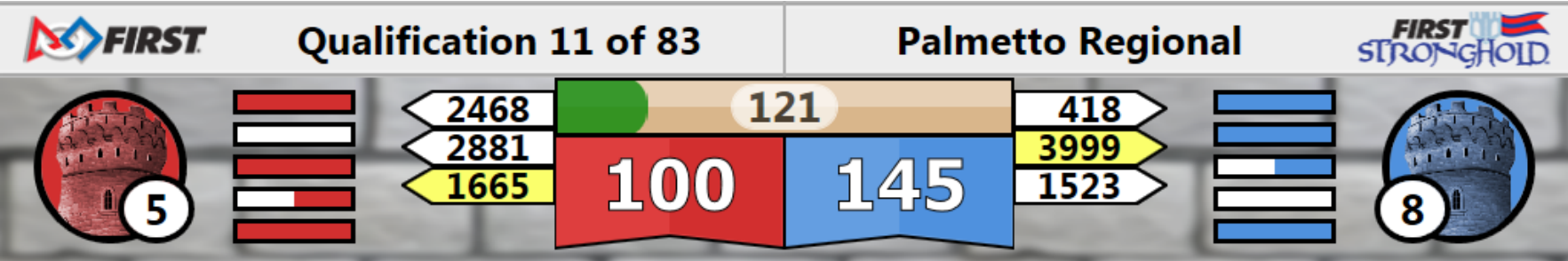
The Head REFEREE may assign a YELLOW CARD as a warning, or a RED CARD for DISQUALIFICATION in MATCH, as a result of egregious or repeated ROBOT or Team member behavior at the event. A YELLOW or RED CARD is indicated by the Head REFEREE standing in front of the Team’s PLAYER STATION and holding a YELLOW and/or RED CARD in the air.

Examples of egregious behavior include, but are not limited to, severe and/or repeated violations of a rule and/or other inappropriate behavior such as repeated use of offensive language or other uncivil conduct.

YELLOW CARDS are additive, meaning that a second YELLOW CARD is automatically converted to a RED CARD. A Team is issued a RED CARD for any subsequent incident in which they receive an additional YELLOW CARD, including earning a second YELLOW card during a single MATCH. A second YELLOW CARD is indicated by the Head REFEREE standing in front of the Team’s PLAYER STATION and holding a YELLOW CARD and RED CARD in the air simultaneously after the completion of the MATCH. A Team that has received either a YELLOW CARD or a RED CARD carries a YELLOW CARD into subsequent MATCHES, except as noted below. A RED CARD results in DISQUALIFICATION.

Once a Team receives a YELLOW or RED CARD, its Team number will be presented with a yellow background on the audience screen at the beginning of all subsequent MATCHES as a reminder to the Team, the REFEREES, and the audience that they carry a YELLOW CARD.

Figure 5-4: Audience Screen Graphic Showing YELLOW and RED CARD Indicators



All YELLOW CARDS are cleared at the conclusion of Qualification MATCHES, providing teams a clean slate at the beginning of Playoff MATCHES.

During the Playoff MATCHES, if a Team receives a YELLOW or RED CARD, it results in the the entire ALLIANCE receiving the YELLOW or RED CARD for that MATCH. If two different Teams on the same ALLIANCE are issued YELLOW CARDS, the entire ALLIANCE is issued a RED CARD. A RED CARD results in zero (0) points for that MATCH, and the ALLIANCE loses the MATCH. If both ALLIANCES receive RED CARDS, the ALLIANCE which committed the action earning the RED CARD first chronologically loses the MATCH.

YELLOW and RED CARDS are applied based on the following:

Table 5-4: YELLOW and RED CARD application

Time YELLOW or RED CARD earned	MATCH to which CARD is applied
prior to the start of Qualification MATCHES	Team’s first Qualification MATCH
during the Qualification MATCHES	Team’s current (or just-completed) MATCH. In the case where the Team participated as a SURROGATE in the current (or just completed) MATCH, the card is applied to the Team’s previous MATCH (i.e. the Team’s second Qualification MATCH.)
between the end of Qualification MATCHES and the start of Playoff MATCHES	ALLIANCE’S first Playoff MATCH
during the Playoff MATCHES	ALLIANCE’S current (or just-completed) MATCH

5.5.5 MATCH Replays

Over the course of the Tournament, ARENA FAULTS may occur. An ARENA FAULT is an error in ARENA operation that includes, but is not limited to:

- A. broken FIELD elements,
- B. power failure to a portion of the FIELD (tripping the circuit breaker in the PLAYER STATION is not considered a power failure)

- C. improper activation by the FMS
- D. errors by FIELD STEWARDS
- E. a Team STANDARD falling into the FIELD

T20 If, in the judgment of the Head REFEREE, an ARENA FAULT occurs that affects the outcome of the MATCH and any team on the affected ALLIANCE desires a replay, the MATCH will be replayed.

All reasonable effort is made to create the same conditions when replaying a MATCH. This means, for example, that a Team which was BYPASSED during the MATCH which is to be replayed, is BYPASSED for the replay MATCH. The DEFENSES used during the MATCH which is to be replayed are also used for the replay MATCH.

Note that an ARENA FAULT that does not affect MATCH outcome in the judgement of the Head REFEREE does not lead to a MATCH replay. Examples include, but are not limited to:

- A. a piece of FIELD plastic falls into the FIELD in the last 5 seconds of a MATCH, far away from any human or ROBOT activity, and in such a way that it does not affect MATCH outcome
- B. delay in the playing of an ARENA sound
- C. mismatch between the timer on the Audience Screen and the FIELD Timer

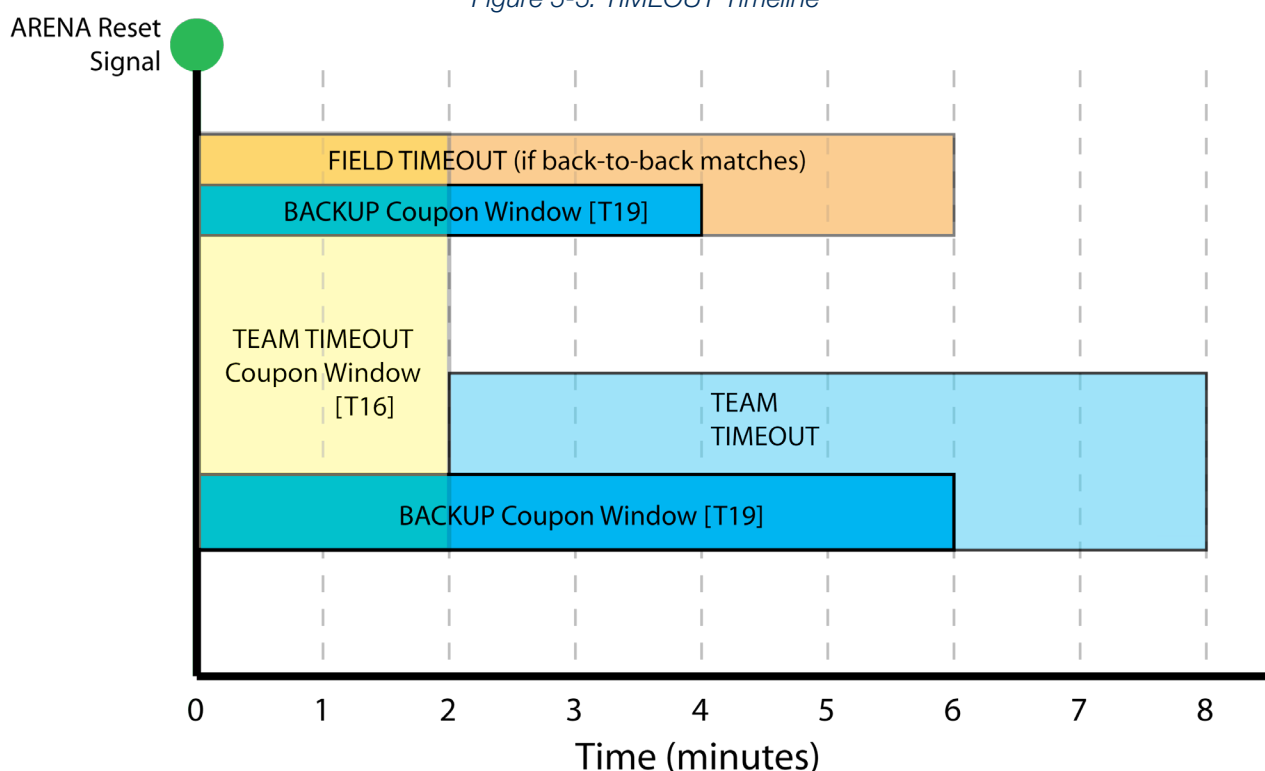
5.5.6 TIMEOUT and BACKUP TEAM Rules

A TIMEOUT is a period of up to six (6) minutes between MATCHES which is used to pause Playoff MATCH progression. Each ALLIANCE is allotted one (1) TIMEOUT. If circumstances require an ALLIANCE to play in back-to-back MATCHES during the Playoff MATCHES, the Head REFEREE will issue a FIELD TIMEOUT to allow Teams to prepare for the next MATCH. FIELD TIMEOUTS are the same time duration as TIMEOUTS.

There are no TIMEOUTS in the Practice or Qualification MATCHES.

During a TIMEOUT, the ARENA Timer will display the time remaining in the TIMEOUT. Both ALLIANCES will enjoy the complete six (6) minute window. If an ALLIANCE completes their repairs before the ARENA Timer expires, the ALLIANCE CAPTAIN is encouraged to inform the Head REFEREE that they are ready to play. If both ALLIANCES are ready to play before the TIMEOUT expires, the next MATCH will start.

Figure 5-5: TIMEOUT Timeline



- T21** If an ALLIANCE wishes to call a TIMEOUT, they must submit their TIMEOUT coupon to the Head REFEREE within two (2) minutes of the ARENA reset signal preceding their MATCH. If there is no preceding MATCH, the TIMEOUT coupon must be submitted no later than two (2) minutes before the scheduled MATCH time
- T22** There are no cascading TIMEOUTS. If an ALLIANCE calls a TIMEOUT during a FIELD TIMEOUT, the FIELD TIMEOUT will immediately expire and the ALLIANCE'S TIMEOUT will begin.

If an ALLIANCE wishes to call a TIMEOUT during a FIELD TIMEOUT, it must still do so within two (2) minutes of the ARENA reset signal preceding their MATCH, per Rule T21.

- T23** TIMEOUTS are not transferrable between ALLIANCES.

While TIMEOUTS are not transferrable between ALLIANCES, meaning an ALLIANCE cannot hand their designated TIMEOUT coupon to another ALLIANCE to use, an ALLIANCE may use their own coupon for any purpose they wish.

- T24** If during a TIMEOUT an ALLIANCE CAPTAIN determines that they need to call up a BACKUP TEAM, they must submit their BACKUP TEAM coupon to the Head REFEREE while there are still at least two (2) minutes remaining on the ARENA Timer. After that point, they will not be allowed to utilize the BACKUP TEAM.

Alternatively, an ALLIANCE CAPTAIN may choose to call up a BACKUP TEAM without using their TIMEOUT by informing the Head REFEREE directly within two (2) minutes of the Head REFEREE issuing the ARENA reset signal preceding their MATCH. If there is no preceding MATCH, the BACKUP TEAM coupon must be submitted no later than two (2) minutes before the scheduled MATCH time.

In the case where the ALLIANCE CAPTAIN'S ROBOT is replaced by a BACKUP TEAM, the ALLIANCE CAPTAIN is allowed in the CASTLE as a thirteenth ALLIANCE member so they can serve in an advisory role to their ALLIANCE.

The Head REFEREE will not accept the BACKUP TEAM coupon unless it lists the number of the Team whose ROBOT is being replaced, and is initialed by the ALLIANCE CAPTAIN. Once a BACKUP TEAM coupon is submitted and accepted by the Head REFEREE, the BACKUP TEAM coupon may not be withdrawn by the ALLIANCE.

T25 An ALLIANCE may request neither a TIMEOUT nor a BACKUP TEAM after a Playoff MATCH is stopped by the Head REFEREE (e.g. due to an ARENA FAULT or a safety issue). The sole exception is if the replay is due to an ARENA FAULT that rendered a ROBOT inoperable.

If a Playoff MATCH is replayed per T25 the Head REFEREE has the option of calling a FIELD TIMEOUT.

5.5.7 Pit Crews

During the Playoff MATCHES, extra Team members may be needed to maintain the ROBOT between MATCHES because of the distance between the FIELD and the pit area. Each Team is permitted to have three (3) additional “pit crew” members who can also help with needed ROBOT repairs/maintenance

T26 Pit Crew members cannot be in the CASTLE during a MATCH.

Violation: MATCH will not start until the situation is corrected. Those not displaying identification must leave the ARENA

5.5.8 Measurement

The ARENA will be open for at least 30 minutes prior to the start of Qualification MATCHES, during which time Teams may survey and/or measure the FIELD, and bring ROBOTS on the FIELD to perform sensor calibration. During this time ROBOTS can be enabled, but can not move, nor can they interact (e.g. shoot, push, pickup, etc.) with BOULDERS or DEFENSES. The specific time that the FIELD is open will be communicated to Teams at the event. Teams may bring specific questions or comments to the FTA.

5.5.9 Special Equipment Rules

The only equipment, provided it does not jam or interfere with the remote sensing capabilities of another Team, including vision systems, acoustic range finders, sonars, infrared proximity detectors, etc. (e.g. including imagery that, to a reasonably astute observer, mimics the Vision Guides), that may be brought in to the CASTLE are as follows:

- A. the OPERATOR CONSOLE,
- B. non-powered signaling devices,
- C. reasonable decorative items,
- D. TEAM STANDARDS and devices, if needed, to assist placement in the Standard Holder,
- E. special clothing and/or equipment required due to a disability
- F. devices used solely for the purpose of planning or tracking strategy provided they meet all of the following conditions:
 - i. do not connect or attach to the OPERATOR CONSOLE
 - ii. do not connect or attach to the FIELD or ARENA
 - iii. do not connect or attach to another ALLIANCE member
 - iv. do not communicate with anything or anyone outside of the ARENA.
 - v. do not include any form of enabled wireless electronic communication (e.g. radios, walkie-talkies, cell phones, Bluetooth communications, Wi-Fi, etc.)

- vi. do not in any way affect the outcome of a MATCH, other than by allowing PLAYERS to plan or track strategy for the purposes of communication of that strategy to other ALLIANCE members.

5.5.10 Selecting Defenses

The specific DEFENSES used during each MATCH are selected by a combination of the audience and the ALLIANCES. One (1) DEFENSE from each of the four (4) DEFENSE groups, A, B, C, and D are on the FIELD each Qualification and Playoff MATCH.

During the Practice MATCHES, ALLIANCES may select any four (4) DEFENSES from the four (4) groups. For example, each of the two (2) DEFENSES from groups A and B. Also, OUTER WORKS DEFENSE positions 2 through 5 are selected by the opposing ALLIANCE, i.e. the Red ALLIANCE selects the Blue ALLIANCE DEFENSES. This provides each ALLIANCE with a predictable set of DEFENSES on which to practice.

5.5.10.1 AUDIENCE SELECTION OF DEFENSES

Prior to each round of Qualification and Playoff MATCHES, the audience selects one of the DEFENSES used by both ALLIANCES on the FIELD. The Audience selected DEFENSE is located in the OUTER WORKS position 3 for both ALLIANCES. The selection process is managed by the Herald (MC) and overseen by the Head REFEREE. The DEFENSE which receives the loudest response, as judged by the Head REFEREE, will be the chosen DEFENSE for the upcoming round of MATCHES.

The FMS determines the order in which the DEFENSE groups are selected by the audience. The group selected by the audience during each round of MATCHES is printed on the Qualification MATCH Schedule as shown in [Figure 5-1](#). While the first group is determined randomly, the groups rotate alphabetically for each subsequent selection. For example, if group B is used for the MATCHES in Round 1, the order will be group C in Round 2, group D in Round 3, group A in Round 4, etc. This order continues into the Playoff MATCHES. For example, if group B is the last group used during the Qualification MATCHES, group C will be used for the first round of the Playoff Quarterfinals, group D is used for the second round, etc.

5.5.10.2 TEAM SELECTION OF DEFENSES

Selection of DEFENSES by each ALLIANCE shall follow the processes outlined below:

During Qualification MATCHES:

- Step 1 – Once in the Queue and no later than the end of the MATCH two (2) MATCHES prior to their scheduled MATCH (i.e. “Queue #2”): Each ALLIANCE selects the DEFENSES and DEFENSE locations on the FIELD and communicates the selections to the Defense Coordinator (DC). The DC’s location is fixed throughout the event, but varies event-to-event depending on available space in each venue.
- Step 2 – Queued and no later than the start of the MATCH one (1) MATCH prior to their scheduled MATCH (i.e. “Queue #1”): ASAP & concurrently, the DC makes available to each ALLIANCE a map revealing the DEFENSES and locations.
- Step 3 – ALLIANCES move from the queue to the FIELD

An ALLIANCE of Teams A, B, and C (ALLIANCE 'ABC') is scheduled to complete in MATCH 10. The Teams arrive in the Queue during Match 7. Match 7 ends, and the Teams for Match 8 proceed on to the FIELD. ALLIANCE 'ABC' is now in position Q2 and has until the end of Match 8 to give their DEFENSE selections to the DC. Match 8 ends and the Teams for Match 9 move to the FIELD, ALLIANCE 'ABC' is now in position Q1 and is given the receipt from the DC revealing the DEFENSES selected by the ALLIANCE they'll be playing against in MATCH 10. They now have the time during MATCH 9 to plan their strategy. At the conclusion of MATCH 9, ALLIANCE ABC proceeds to the FIELD to participate in MATCH 10.

The DEFENSE selection process outlined for the Qualification MATCHES will also be employed during Practice MATCHES. Strict adherence to this process during all, or only a portion of, the Practice MATCHES will be left to the discretion of the FTA based on the number of available FIELD STEWARDS.

During Playoff MATCHES:

- Step 1 – Once in the Queue and no later than the end of the MATCH or FIELD TIMEOUT which immediately preceeds their scheduled MATCH (i.e. "Queue #1"): Each ALLIANCE selects the DEFENSES and their locations on the FIELD and communicates the selections to the Defense Coordinator (DC).
- Step 2 – Strategize: ASAP & concurrently, DC gives each ALLIANCE a map revealing the DEFENSES and locations. The teams then have two (2) minutes to plan their strategy and move their ROBOTS from the queue to the FIELD.

The DEFENSE selection process is modified during the Playoffs due to several cases where ALLIANCES may play in back-to-back MATCHES. In these circumstances there isn't a state where an ALLIANCE is in Queue #2., so a similar amount of reasonable time is provided for ALLIANCES to plan their strategy and select DEFENSES.

Figure 5-6: DEFENSE Selection Timeline for Qualification and Quarterfinal Playoff MATCHES (see Qualification MATCH Blue Box Example)

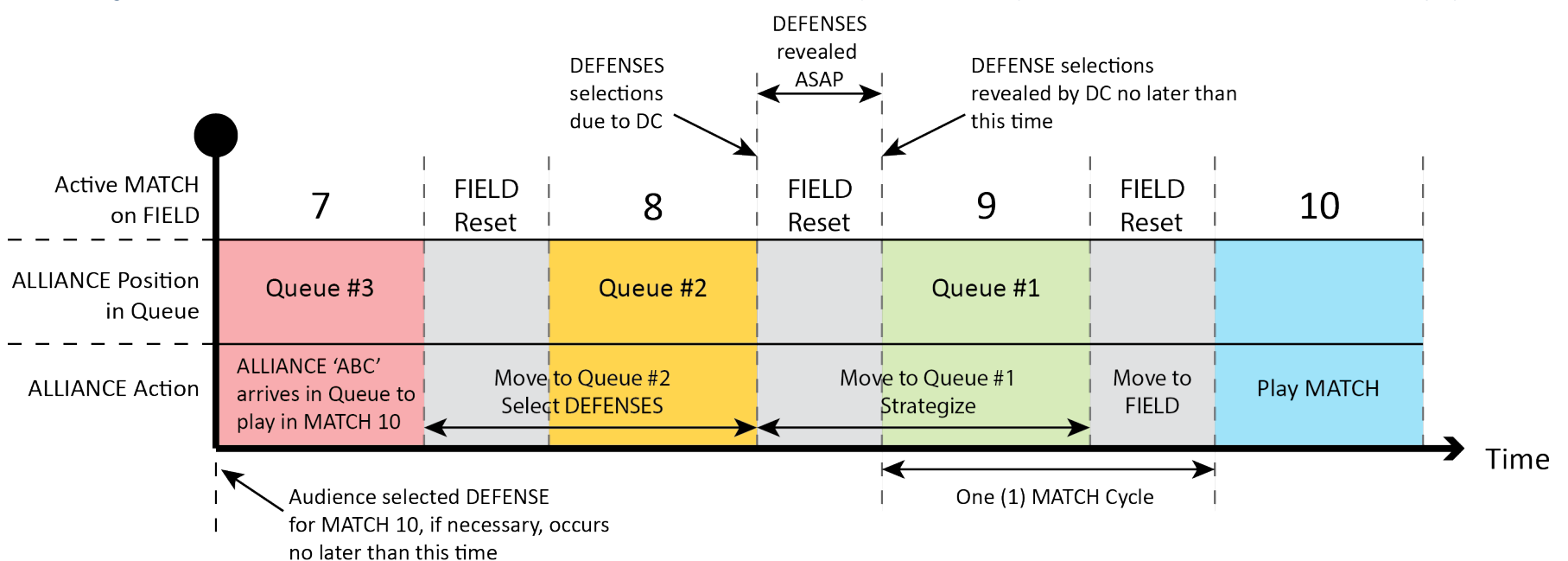


Figure 5-7: Abbreviated DEFENSE Selection Timeframe for Semifinal and Final Playoff MATCHES

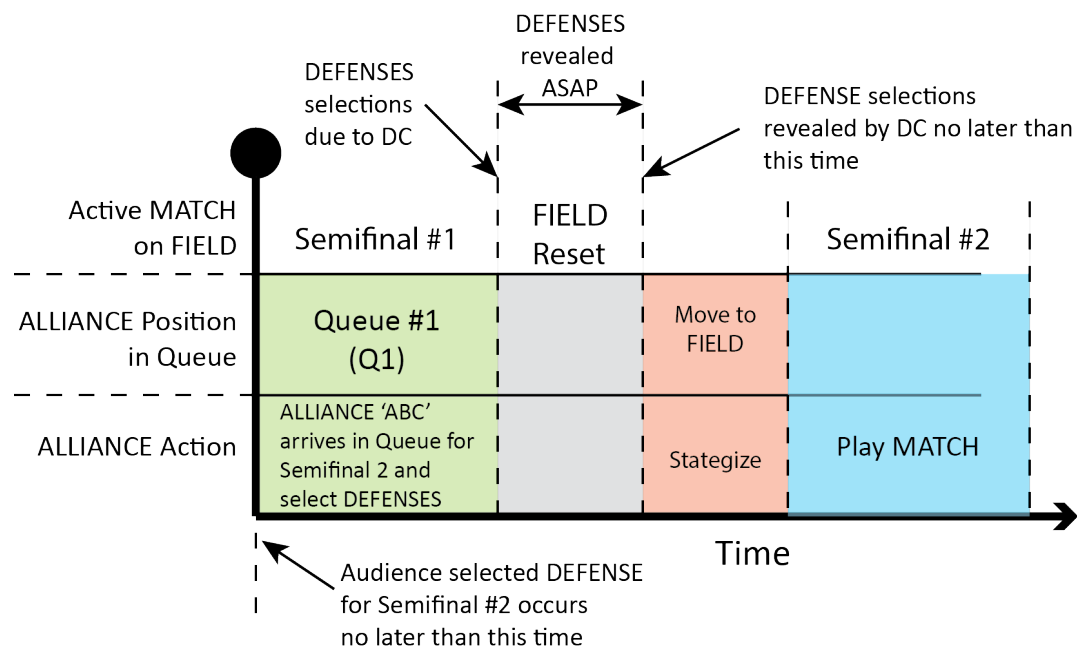


Figure 5-8: DEFENSE Selection Timeline for back-to-back MATCHES

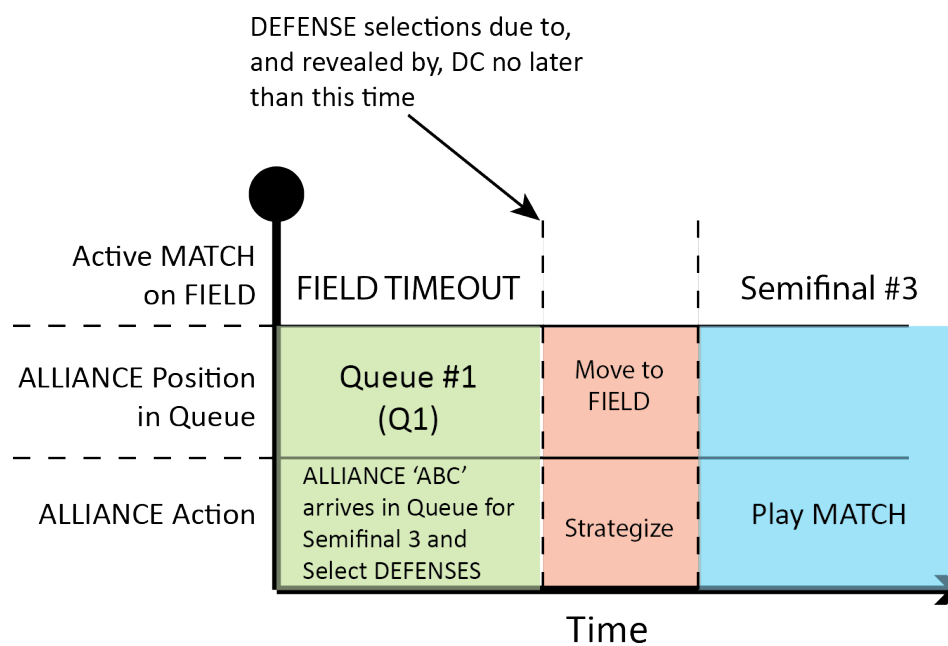


Figure 5-9: DEFENSE Selection Timeline Prior to Opening Ceremonies or After Breaks

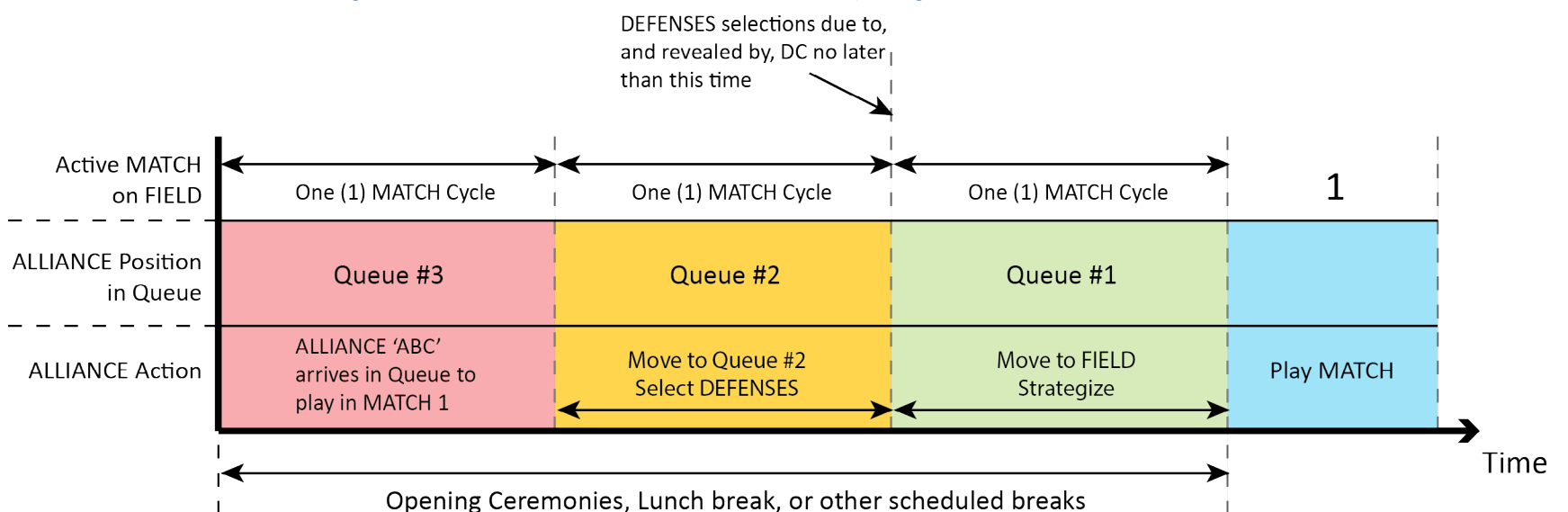


Figure 5-9 outlines the DEFENSE selection process employed prior to Opening Ceremonies, or after scheduled breaks, such as lunch. The process is for all intents and purposes the same as depicted in Figure 5-6. The DC will enforce time limits similar to what would be expected during normal MATCH

play. The event staff are given some flexibility to define the exact amount of time provided for the selection of DEFENSES and strategizing during these periods. Teams are encouraged to arrive in the queue early enough to allow sufficient time for DEFENSE selection and to strategize with their ALLIANCE partners.

For example, a Qualification schedule is set to start at 8:30AM that has a cycle time of 7 minutes, i.e. MATCHES start every 7 minutes. Prior to the start of these MATCHES there is a 30 minute Opening Ceremony starting at 8:00AM. The Event Staff elects to enforce 7 minute cycle time windows for the selection of DEFENSES and strategizing prior to the start of MATCH #1 which runs concurrent with the Opening Ceremony. The Teams scheduled to play in MATCH #1 must have their DEFENSE selections to the DC no later than 8:23AM.

The following rules apply to the Team Selection of DEFENSES.

- T27** Only a single ALLIANCE representative, from a DRIVE TEAM, may interact with the DC at a time.
- T28** If there is a disagreement amongst the Teams on an ALLIANCE regarding the specific DEFENSES or their locations on the FIELD, the ALLIANCE CAPTAIN or Team assigned to PLAYER STATION #2 has the final decision authority. If the ALLIANCE CAPTAIN or the Team assigned to PLAYER STATION #2 is not eligible to participate in the MATCH the decision authority falls to the Team assigned to PLAYER STATION #1. If none of these Teams is eligible to participate in the MATCH, the decision authority is with the Team in PLAYER STATION #3.
- T29** During Qualification MATCHES, ALLIANCES must inform the DC of their DEFENSE selections prior to moving to “Queue #1”
- T30** During Playoff MATCHES, ALLIANCES must inform the DC of their DEFENSE selections prior to the conclusion of the MATCH or FIELD TIMEOUT which immediately precedes their scheduled MATCH.
- T31** If an ALLIANCE does not communicate its DEFENSE selection to the DC within the required time period, the DEFENSES are randomly selected by the FMS.
- T32** Once the DEFENSE selections are communicated to the DC they cannot be changed.

5.6 Championship Additions and Exceptions

At the 2016 *FIRST* Championship, Teams are split into eight (8) Subdivisions. Each Subdivision plays a standard Tournament as described in [Section 5.3 Qualification MATCHES](#), [Section 5.4 Playoff MATCHES](#), [Section 5.5 Tournament Rules](#), with the exception of [Section 5.4.1 ALLIANCE Selection Process](#) and [Section 5.4.2 BACKUP TEAMS](#), to produce the Subdivision Champions. Those eight (8) Subdivision Champions proceed to the Championship Playoffs, on the Einstein FIELDS, to determine the 2016 *FIRST* Robotics Competition Champions.

There is no provision for BACKUP TEAMS at the Championship.

5.6.1 Four ROBOT ALLIANCES

Before each Subdivision Playoff Tournament, ALLIANCES will be selected per the process as described in [Section 5.4.1 ALLIANCE Selection Process](#), however the process will continue with a 3rd round of selection as follows.

Round 3: The same method is used for each ALLIANCE CAPTAIN’S third choice except the selection order is reversed again, with ALLIANCE One picking first and ALLIANCE Eight picking last. This process results in eight (8) ALLIANCES of four (4) Teams each.

ALLIANCES may start with any three (3) of the four (4) ROBOTS on their ALLIANCE during Subdivision Playoff MATCHES and during the Championship Playoffs. The list of three (3) Teams participating in the MATCH and their selected PLAYER STATIONS is called the LINEUP. One representative from the Team not on the LINEUP is allowed in the CASTLE as a thirteenth ALLIANCE member.

- T33** The ALLIANCE CAPTAIN must report the LINEUP to the Head REFEREE, or their designee, in writing prior to end of the preceding MATCH (e.g. the LINEUPS for Quarterfinal 2 must be submitted before the end of Quarterfinal 1). If there is no preceding MATCH, the LINEUP is due no later than two (2) minutes before the scheduled MATCH time.

Violation: The LINEUP is the same as the ALLIANCE'S previous MATCH. If any of these three (3) ROBOTS are unable to play, the ALLIANCE must play the MATCH with only two (2) (or even one (1)) ROBOTS.

If an ALLIANCE fails to submit a LINEUP per the process defined in **T33** and the MATCH is their first of the Subdivision Playoffs or the Championship Playoffs, the LINEUP will be the ALLIANCE Lead, first ALLIANCE selection, and second ALLIANCE selection. If any of these three (3) ROBOTS are unable to play, the ALLIANCE must play the MATCH with only two (2) (or even one (1)) ROBOTS.

The LINEUP will be kept confidential until the FIELD is set for the MATCH, at which point each ALLIANCE'S LINEUP will appear on the Team Signs.

- T34** Once the LINEUP has been declared, it cannot be changed unless there is a TIMEOUT. If there is a TIMEOUT, the ALLIANCE CAPTAIN may submit a different LINEUP, but must do so while there are still more than two (2) minutes remaining in the TIMEOUT.

Example: Four (4) Teams, A, B, C and D, form an ALLIANCE going into the Playoff MATCHES on their Subdivision FIELD. During one of the Playoff MATCHES, Team C's ROBOT becomes inoperable. The ALLIANCE decides to bring in Team D to replace Team C. Team C repairs their ROBOT and may play in any subsequent Playoff MATCHES replacing Teams A, B, or D. All four (4) ALLIANCE members are also eligible to play MATCHES during the Championship Playoffs should the ALLIANCE win the Subdivision Tournament.

- T35** If a MATCH must be replayed due to an ARENA FAULT, the LINEUP for the replayed MATCH is the same as the original MATCH. The sole exception is if the ARENA FAULT rendered a ROBOT inoperable, in which case the LINEUP can be changed.

5.6.2 Championship Pit Crews

FIRST will distribute badges to the ALLIANCE CAPTAINS during the ALLIANCE CAPTAIN meeting, which takes place on the Subdivision FIELDS. These badges will provide the necessary access to the ARENA for pit crew members.

- T36** Only Team members wearing proper badges are allowed on the ARENA floor during Subdivision and Championship Playoff MATCHES.

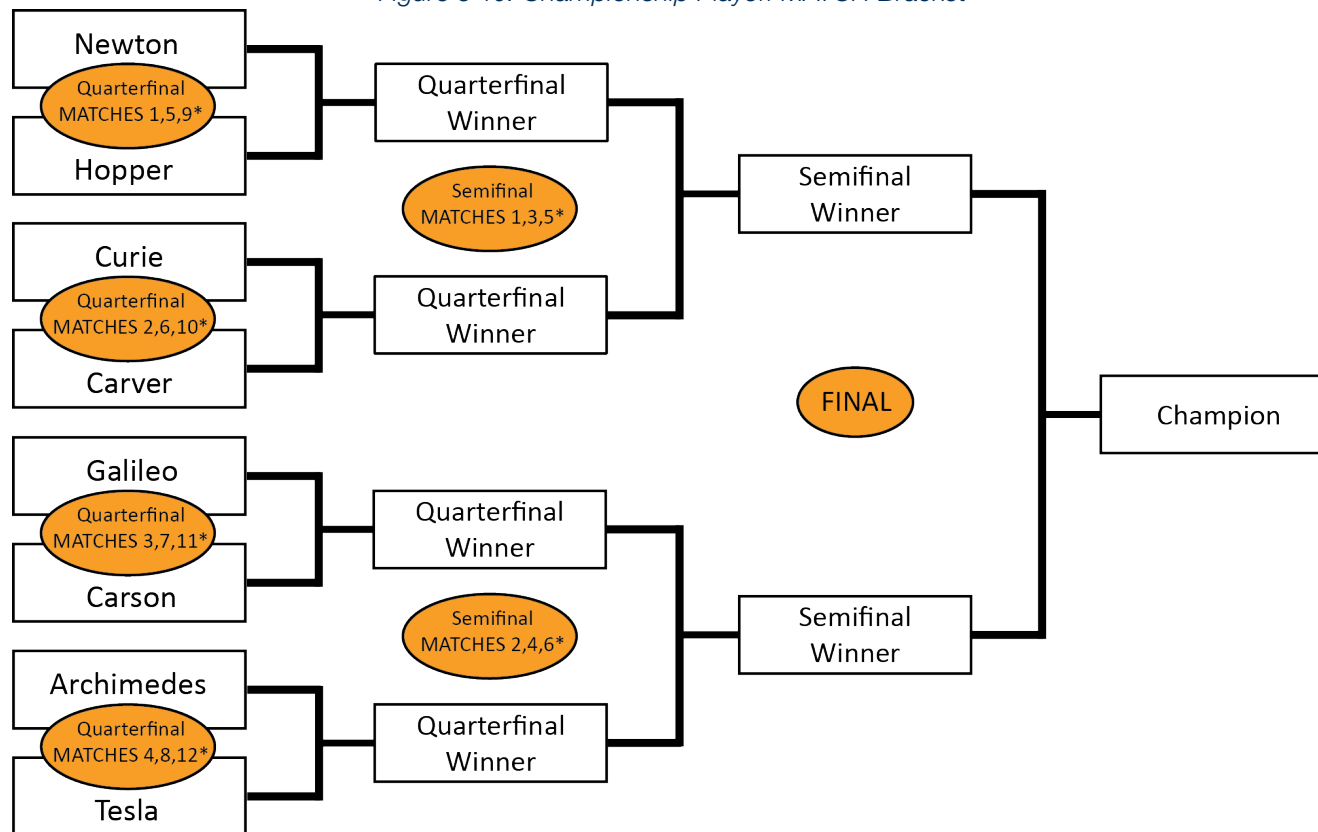
Violation: MATCH will not start until the situation is corrected. Those not displaying identification must leave the ARENA.

Teams should assume they may be chosen for an ALLIANCE and think about the logistics of badge distribution and set a plan prior to the ALLIANCE selection process. It is each ALLIANCE CAPTAIN'S responsibility to get the Team's badges to the pit crew members.

5.6.3 FIRST Robotics Competition Championship MATCH Bracket

The figure below details the order in which MATCHES are played during the Championship Playoffs.

Figure 5-10: Championship Playoff MATCH Bracket



*If necessary

In order to allow time between MATCHES for all ALLIANCES and the selection of DEFENSES, the order of play is as follows:

Table 5-5: FIRST Championship Playoff Order and Audience DEFENSE Selection Timing

Quarterfinal Round 1	Quarterfinal Round 2	Quarterfinal Round 3	Semifinals	Finals
Audience selects DEFENSES per 5.5.10.1 ¹	Audience selects DEFENSES per 5.5.10.1 ¹	Same Group selection as Qual Round 2	Audience selects DEFENSES per 5.5.10.1 ¹	Audience selects DEFENSES per 5.5.10.1 ¹
Quarterfinal 1 (Newton vs.Hopper)	Quarterfinal 5 (Newton vs.Hopper)	Newton vs. Hopper Tiebreaker ²	Semifinal 1	Final 1
Quarterfinal 2 (Curie vs.Carver)	Quarterfinal 6 (Curie vs.Carver)	Curie vs.Carver Tiebreaker ²	Semifinal 2	FIELD TIMEOUT
Quarterfinal 3 Galileo vs.Carson)	Quarterfinal 7 (Galileo vs.Carson)	Galileo vs.Carson Tiebreaker ²	Semifinal 3	Final 2
Quarterfinal 4 (Archimedes vs.Tesla)	Quarterfinal 8 (Archimedes vs.Tesla)	Archimedes vs.Tesla Tiebreaker ²	Semifinal 4	FIELD TIMEOUT
	FIELD TIMEOUT ²	FIELD TIMEOUT ²	Semifinal Tiebreaker 1 ²	Final Tiebreaker ²
		Any Replays due to ties ²	Semifinal Tiebreaker 2 ²	FIELD TIMEOUT ²
			FIELD TIMEOUT ²	Any Replays due to ties ²
			Any Replays due to ties ²	

¹ specific group determined by FMS

² if required

FIRST®, the FIRST® logo, FIRST® Robotics Competition, Coopertition®, Gracious Professionalism® are registered trademarks, and Sport for the Mind™ and FIRST STRONGHOLDSM are common law trademarks, of the United States Foundation for Inspiration and Recognition of Science and Technology (FIRST®). ©2016 FIRST®. All rights reserved.