

## 10 Tournaments

Each 2024 *FIRST* Robotics Competition event is played in a tournament format. Each tournament consists of 3 types of MATCHES: Practice MATCHES (not necessarily played 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 Ranking Points which determine their seeding position and may qualify them for participation in the Playoff MATCHES.

Playoff MATCHES determine the event Champions.

### 10.1 MATCH Schedules

A MATCH schedule is used to coordinate MATCHES at an Event. Figure 10-1 details information shown on each schedule. SURROGATE MATCHES are described in [Section 10.5.2 MATCH Assignment](#).

Figure 10-1 Sample MATCH schedule

**Qualification Match Schedule**

Event Name								
Matches Per Team		10	ALLIANCE Red or Blue					
Time	Description	Match	Blue 1	Blue 2	Blue 3	Red 1	Red 2	Red 3
Thu 2:30	Qualification 1	1	1	2	3	4	5	6
Thu 2:37	Qualification 2	2	7	8	9	10	11*	12
Thu 2:44	Qualification 3	3	13	14	15*	16	17	18

DRIVER STATION number  
1, 2, or 3

MATCH Start Time      MATCH Type      MATCH Number      Asterisk (\*) indicates SURROGATE MATCH

### 10.2 MATCH Replays

Over the course of the tournament, it may be necessary for a MATCH to be replayed. Typical causes for replays are MATCHES that end in a tie during the Playoffs (due to criteria listed in Table 10-3 or any Finals MATCH), MATCHES that are stopped because FIELD STAFF anticipated FIELD damage or personal injury, or if there is an ARENA FAULT. An ARENA FAULT is an error in ARENA operation that includes, but is not limited to:

- A. broken FIELD elements due to
  - a. normal, expected game play or
  - b. ROBOT abuse of FIELD elements that affects the outcome of the MATCH for their opponents

A broken FIELD element caused by ROBOT abuse that affects the outcome of the MATCH for their ALLIANCE is not an ARENA FAULT.

- B. power failure to a portion of the FIELD (tripping the circuit breaker in the DRIVER STATION is not considered a power failure),
- C. improper activation by the FMS,
- D. errors by FIELD STAFF (except those listed in [Section 6.8 Other Logistics](#)), and

- E. a ROBOT radio disconnect that impairs operation of other ROBOTS on the FIELD for more than 8 seconds.

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. FIRST Headquarters reserves the right to, with consultation of the Head REFEREE and the FTA, replay a MATCH in which an ARENA FAULT impacts the outcome of an event.

The outcome of the MATCH is affected if an error occurs that, in the judgement of the Head REFEREE, changes which ALLIANCE would have won the MATCH and/or the assignment of Ranking Points.

The outcome of an event is affected if an error occurs that, in the judgement of FIRST Headquarters, changes the assignment of Ranking Points or has a dramatic effect on points used for ranking criteria.

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, 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 ARENA timer,
- D. any adjustment or delay in assignment of a penalty (including those made after the MATCH), and
- E. the disconnect described in scenario E occurring before the last 20 seconds of the MATCH.

- T201** \*Replays will be the same. All reasonable effort is made to create the same conditions when replaying a MATCH caused by an ARENA FAULT or FIELD damage. This means, for example, that a team that was BYPASSED prior to the start of the MATCH which is to be replayed is BYPASSED for the replay MATCH. ROBOT and DRIVE TEAM starting locations do not need to be replicated when replaying a MATCH.

*Violation: MATCH with not start until the situation is corrected*

## 10.3 Measurement

At each event, 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 ARENA and bring ROBOTS on the FIELD to perform sensor calibration. 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.

- T301** \*Freeze, ROBOT. During the period when the ARENA is open for measurement, ROBOTS can be enabled, but may neither drive, extend outside their FRAME PERIMETER, nor interact with (e.g. score, push, pickup, etc.) NOTES, the STAGE, SUBWOOFER, AMP, or other FIELD elements.

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

## 10.4 Practice MATCHES

Practice MATCHES are played before Qualification MATCHES. The Practice MATCH schedule is available as soon as possible, but no later than the start of Practice MATCHES. For Regional events, it will also be

published and available online at the [FIRST Robotics Competition Event Results site](#), except during exceptional circumstances. 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 6. In this case, the FMS randomly selects some teams to play an extra Practice MATCH.

Practice MATCHES are not guaranteed at District Events due to event schedule constraints.

#### 10.4.1 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 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.

Only teams that meet all criteria below qualify for the Filler Line:

- 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 1 spot in the Filler Line, and
- E. if a team is queued for their Practice MATCH, they may not also join the Filler Line.

## 10.5 Qualification MATCHES

### 10.5.1 Schedule

The Qualification MATCH schedule is made available as soon as possible, but no later than 30 minutes before Qualification MATCHES are scheduled to begin. Teams receive 1 hard copy and it is also available at the [FIRST Robotics Competition Event Results site](#), except during exceptional circumstances. Each Qualification schedule consists of a series of rounds in which each team plays 1 MATCH per round.

### 10.5.2 MATCH Assignment

FMS assigns each team 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. ensure each team has at least the minimum required time between MATCHES (varies by event size)
2. minimize the number of times a team is allied with any team
3. minimize the number of times a team plays opposite 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
6. provide even distribution of MATCHES played in each DRIVER STATION number

For more information about the MATCH scheduling algorithm, please see [Idle Loop software's website](#).

At events with fewer than 24 participating teams, the criteria are similar, however criterion 5 is changed to minimize the number of times a team swaps between the blue and red ALLIANCE rather than an even distribution.

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 6. 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 effect on the team’s ranking. YELLOW and RED CARDS assigned to SURROGATES, however, do carry forward to subsequent MATCHES.

### 10.5.3 Qualification Ranking

Ranking Points are units credited to a team based on their ALLIANCE’S performance in Qualification MATCHES. Ranking Points are awarded to each eligible team at the completion of each Qualification MATCH per Table 6-2.

Exceptions to Ranking Point assignment are as follows:

- A. A SURROGATE receives 0 Ranking Points.
- B. A DISQUALIFIED team, as determined by the Head REFEREE, receives 0 Ranking Points.
- C. A “no-show” team is either DISQUALIFIED from or issued a RED CARD for that MATCH (see [G208](#)). A team is declared a no-show if no member of the DRIVE TEAM is in the ALLIANCE AREA at the start of the MATCH.

The total number of Ranking Points earned by a team throughout their Qualification MATCHES divided by the number of MATCHES they’ve been scheduled to play (minus any SURROGATE MATCH), then rounded to 2 decimal places, is their Ranking Score (RS).

All teams participating in Qualification MATCHES are ranked by Ranking Score. If the number of teams in attendance is ‘n’, they are ranked ‘1’ through ‘n’, with ‘1’ being the team with the highest Ranking Score and ‘n’ being the team with the lowest Ranking Score.

Teams are ranked in order, using the sorting criteria defined in Table 10-1.

*Table 10-1 Qualification MATCH ranking criteria*

Order Sort	Criteria
1 <sup>st</sup>	Ranking Score
2 <sup>nd</sup>	Average <i>Coopertition</i> Bonus points
3 <sup>rd</sup>	Average ALLIANCE MATCH points, not including FOULS and TECH FOULS
4 <sup>th</sup>	Average ALLIANCE LEAVE + AUTO NOTES points
5 <sup>th</sup>	Average ALLIANCE STAGE points
6 <sup>th</sup>	Random sorting by the FMS

## 10.6 Playoff MATCHES

Playoff MATCHES follow the qualification MATCHES. In the Playoffs, teams play on set ALLIANCES, chosen during ALLIANCE selection, and advance through a double elimination bracket. Teams do not earn Ranking Points; they advance based on winning, losing, or tying a MATCH.

A DISQUALIFIED team, as determined by the Head REFEREE, causes their alliance to receive 0 MATCH points in a Playoff MATCH.

### 10.6.1 ALLIANCE Selection Process

At the end of the Qualification MATCHES, the top 8 ranked teams become the ALLIANCE Leads. The ranked ALLIANCES are designated, in order, ALLIANCE 1, ALLIANCE 2, etc., down to ALLIANCE 8. Using the ALLIANCE selection process described in this section, each ALLIANCE Lead chooses 2 other teams to join their ALLIANCE.

**T601** \***Send a STUDENT representative.** Each team must choose and send a STUDENT team representative to the ARENA at the designated ALLIANCE Selection time (typically before the lunch break on the final day of the event) to represent their team. The designated STUDENT representative from each ALLIANCE Lead is called the ALLIANCE CAPTAIN. This representative may change between ALLIANCE selection and Playoff MATCHES.

*Violation: Team is ineligible for the Playoff Tournament*

If an absent team would have been an ALLIANCE Lead, all lower ranked ALLIANCE Leads are promoted 1 spot. The next highest-ranked team moves up to become the ALLIANCE 8 Lead.

The ALLIANCE selection process consists of 2 rounds during which each ALLIANCE CAPTAIN invites a team ranked below them in the standings to join their ALLIANCE.

Round 1: In descending order (ALLIANCE 1 to ALLIANCE 8), each ALLIANCE CAPTAIN invites a single team to join their ALLIANCE. 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 8 ALLIANCE to another ALLIANCE Lead is accepted, all lower ALLIANCE Leads are promoted 1 spot. The highest-ranked, unselected team becomes the ALLIANCE 8 Lead.

Round 2: The same method is used for each ALLIANCE CAPTAIN'S second choice except the selection order is reversed, with ALLIANCE 8 picking first and ALLIANCE 1 picking last. This process results in 8 ALLIANCES of 3 teams.

**T602** \***Declining teams can't be picked.** An ALLIANCE CAPTAIN may not invite a team that has declined another ALLIANCE'S invitation to participate in the Playoff tournament. Declining teams are ineligible to be a BACKUP TEAM.

*Violation: The ALLIANCE CAPTAIN must make another selection*

An ALLIANCE Lead that declines an invitation from another ALLIANCE is able to invite teams to join their ALLIANCE but may not be invited to join another ALLIANCE.

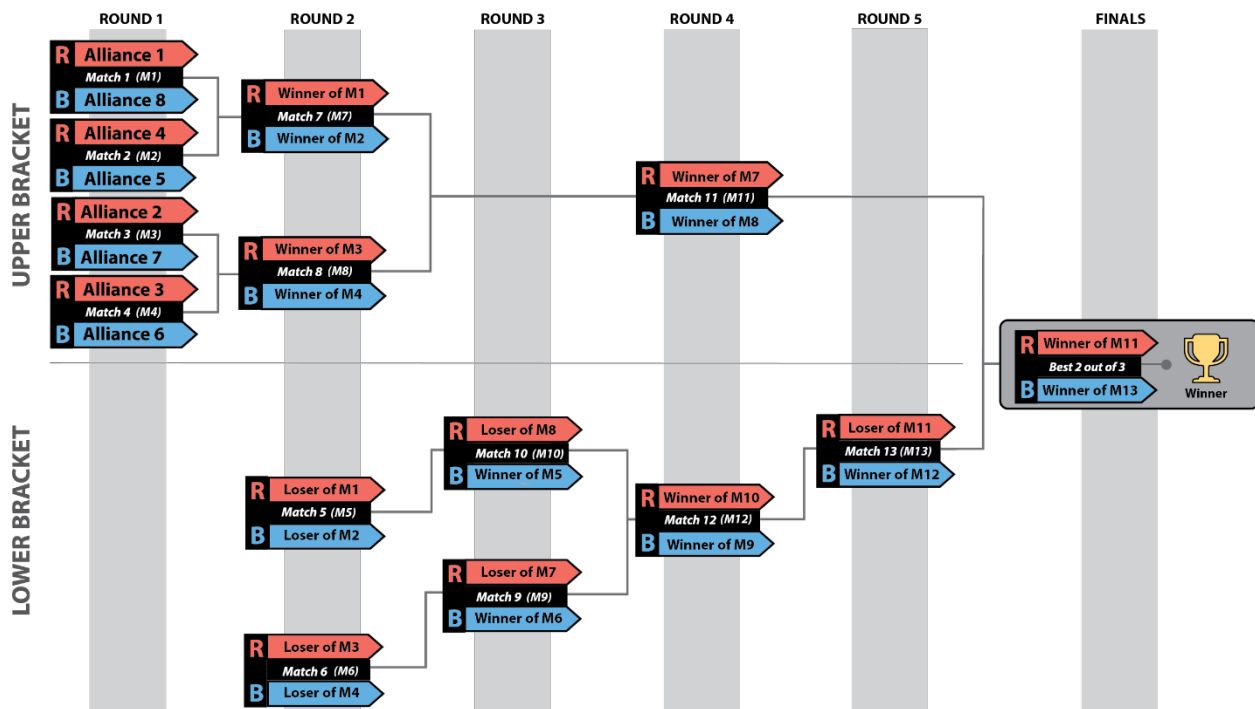
At the conclusion of ALLIANCE selection, the highest ranked unselected teams are eligible to become a BACKUP TEAM, as defined in [Section 10.6.3 BACKUP TEAMS](#).

### 10.6.2 Playoff MATCH Bracket

The double elimination tournament consists of an Upper and Lower bracket as shown in Figure 10-2. Each ALLIANCE begins with a slot in the Upper bracket. If an ALLIANCE wins a MATCH in the Upper bracket, they remain in the Upper bracket. If an ALLIANCE loses a MATCH in the Upper bracket, they transition to the Lower bracket. ALLIANCES in the Lower bracket must win any subsequent MATCHES (except for finals) to remain in the tournament, i.e. once they lose a MATCH, they're out of the tournament.

In Round 1, the higher ranked ALLIANCE is assigned to the red ALLIANCE. For subsequent rounds, ALLIANCE color is assigned as shown in Figure 10-2, regardless of ALLIANCE rank at the start of the Playoff tournament.

Figure 10-2 Playoff MATCH bracket (Red ALLIANCE tops each pairing)



As shown in Figure 10-2 and Table 10-2, Playoff MATCHES consist of 6 rounds with breaks between later rounds and between Finals MATCHES. Breaks begin after the FIELD has been cleared from the previous MATCH. The Blue and Red Gap columns indicate the approximate time between each ALLIANCE’S MATCHES. The expected start time of the scheduled MATCH is the time indicated on the MATCH schedule or 15 minutes from the end of either ALLIANCE’S previous MATCH, whichever is later.

If a Playoff MATCH needs to be replayed as described in [Section 10.2 MATCH Replays](#), teams are notified of when the replay will occur. A minimum 10-minute delay is provided for teams to reset their ROBOTS prior to the replay unless all teams are ready sooner. The affected MATCH must be replayed before the next round begins.

Table 10-2 Typical Playoff MATCH schedule

Round	MATCH	Upper/ Lower	Gap (min)				Next MATCH (MATCH # (ALLIANCE color))	
			Blue	Red	Blue	Red	Winner	Loser
1	1	Upper	8	1			M7 (R)	M5 (R)
	2	Upper	5	4			M7 (B)	M5 (B)
	3	Upper	7	2			M8 (R)	M6 (R)
	4	Upper	6	3			M8 (B)	M6 (B)
2	5	Lower	L2	L1	0:24	0:33	M10 (B)	
	6	Lower	L4	L3	0:15	0:24	M9 (B)	
	7	Upper	W2	W1	0:42	0:51	M11 (R)	M9 (R)
	8	Upper	W4	W3	0:33	0:42	M11 (B)	M10 (R)
3	9	Lower	W6	L7	0:24	0:15	M12 (B)	
	10	Lower	W5	L8	0:42	0:15	M12 (R)	
6-minute break								
4	11	Upper	W8	W7	0:27	0:36	M14 (R)	M13 (R)
	12	Lower	W9	W10	0:27	0:18	M13 (B)	
15-minute awards break: Imagery, Gracious Professionalism, Team Spirit, and Rookie Inspiration								
5	13	Lower	W12	L11	0:18	0:27	M14 (B)	
15-minute awards break: Autonomous, Creativity, Quality, and Industrial Design								
Finals	14		W13	W11	0:18	0:48	M15	M15
15-minute awards break: Innovation in Control, Excellence in Engineering, Team Sustainability, Judges								
Finals	15		W13	W11	0:18	0:18	M16*	M16*
15-minute awards break: Rookie All Star, Dean's List, Engineering Inspiration**								
Finals	16*		W13	W11	0:18	0:18		
Awards: Remaining awards, Finalists, Winners, and FIRST Impact Award								

\* if required

\*\* Program Delivery Partners may choose to hold these awards until after all MATCHES are complete.

### 10.6.2.1 Playoff MATCH ties

If final MATCH scores for both ALLIANCES are equal, the win is awarded to the ALLIANCE per criteria listed in Table 10-3.

Table 10-3 Playoff MATCH Tiebreaker Criteria

Order Sort	Criteria
1 <sup>st</sup>	Cumulative TECH FOUL points due to opponent rule violations

Order Sort	Criteria
2 <sup>nd</sup>	ALLIANCE AUTO points
3 <sup>rd</sup>	ALLIANCE STAGE points
4 <sup>th</sup>	MATCH is replayed

### 10.6.2.2 Playoff Finals

Once a single ALLIANCE remains in each Upper and Lower bracket, those ALLIANCES proceed to the Finals round. The first ALLIANCE to win 2 MATCHES in the Finals becomes the event's Champions.

If a Finals MATCH ends in a tie score, the tie is not broken using the criteria in Table 10-3, the MATCH remains a tie. In the case where an ALLIANCE hasn't won 2 MATCHES after 3 MATCHES have been played (because of tied MATCHES), the Playoffs proceed with up to 3 additional Finals MATCHES, called Overtime MATCHES, until an ALLIANCE has won 2 Finals MATCHES. In the case where the Overtime MATCH scores for both ALLIANCES are equal, the win for that Overtime MATCH is awarded based on the criteria listed in Table 10-3.

### 10.6.3 BACKUP TEAMS

During the Playoff MATCHES an ALLIANCE may elect to replace one of its ROBOTS due to a mechanical or software issue that prevents that ROBOT from competing effectively. The team whose ROBOT and DRIVE TEAM replaces another ROBOT and DRIVE TEAM on an ALLIANCE during the Playoff MATCHES is called the BACKUP TEAM.

In this situation, the ALLIANCE CAPTAIN has the option to bring in the highest ranked team from the pool of available teams to join its ALLIANCE for the following MATCH. The resulting ALLIANCE is then composed of 4 teams.

ALLIANCES submit LINEUPS (as described in [Section 10.6.4 LINEUPS](#)) for each Playoff MATCH. After the BACKUP TEAM's first Playoff MATCH, the ALLIANCE'S LINEUP may consist of any 3 of the ALLIANCE'S 4 teams.

#### 10.6.3.1 BACKUP TEAM Coupons

Each ALLIANCE is allotted 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 2 (or even 1) ROBOTS.

Example: 3 teams, A, B and C, form an ALLIANCE going into the Playoff MATCHES. The highest ranked team not on 1 of the 8 ALLIANCES is Team D. During 1 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 in the next MATCH. The new ALLIANCE of Teams A, B, C, 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.

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.



**T603 \*No BACKUP TEAM for replayed MATCHES.** An ALLIANCE may not request a BACKUP TEAM for a replayed MATCH. The sole exception is if, in the judgment of the Head REFEREE, the replay is due to an ARENA FAULT that rendered an ALLIANCE'S ROBOT inoperable.

*Violation: The request is denied.*

**T604 \*No BACKUP TEAMS for 1st MATCH.** An ALLIANCE may not request a BACKUP TEAM until after their first Playoff MATCH.

*Violation: The request is denied.*

**T605 \*BACKUP TEAMS play when called.** A BACKUP TEAM must be included in the LINEUP for the ALLIANCE'S next MATCH following their recruitment.

*Violation: The LINEUP is denied.*

If the Head REFEREE is busy, and there is no designee, the ALLIANCE CAPTAIN remains in the Question Box to report the LINEUP.

**T606 \*BACKUP TEAMS due 2 minutes before the MATCH start time.** The BACKUP TEAM Coupon must be submitted to the Head REFEREE (or their designee) by the ALLIANCE CAPTIAN not later than 2 minutes before the expected MATCH start time in which the BACKUP TEAM is to play.

*Violation: The request is denied*

If the Head REFEREE is busy, and there is no designee, the ALLIANCE CAPTAIN remains in the Question Box to submit the BACKUP TEAM coupon.

### 10.6.3.2 BACKUP POOL

After the top ranked ALLIANCE has made their final pick during ALLIANCE Selection, REFEREES poll the remaining eligible teams. In rank order, REFEREES invite remaining teams to accept or decline a position in the BACKUP POOL, i.e. the group of teams willing and able to join an ALLIANCE during the Playoff MATCHES, if needed, until up to 8 teams accept.

**T607 \*Be there to be a BACKUP TEAM.** A team must be present after ALLIANCE Selection to accept the REFEREE'S invitation to join the BACKUP POOL.

*Violation: Team is ineligible to be a BACKUP TEAM.*

**T608 \*Send a BACKUP TEAM Representative.** The top 2 ranked BACKUP TEAMS must send at least 1 STUDENT representative (and optionally 1 additional STUDENT or mentor) to a designated area near the FIELD for the duration of the Playoff MATCHES.

These 2 representatives are available to answer questions and accept invitations to be a BACKUP TEAM from ALLIANCE CAPTAINS. If 1 of these 2 teams joins an ALLIANCE or excuses themselves from the BACKUP POOL, the next highest ranked team in the BACKUP POOL must provide their representative. Once a BACKUP TEAM has declined an invitation to join an ALLIANCE, it is no longer a member of the BACKUP POOL and ineligible to join another ALLIANCE.

*Violation: Verbal warning, plus the team is removed from BACKUP POOL if the situation cannot be corrected within a reasonable amount of time.*

Some events may offer an area near the FIELD where the top 1 or 2 teams in the BACKUP POOL may choose to stage their ROBOT for quick and easy access to the FIELD if recruited.

## 10.6.4 LINEUPS

Each ALLIANCE competing in a Playoff MATCH has the option to submit a LINEUP, which lists the 3 teams participating in the MATCH and their selected DRIVER STATIONS.

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

### 10.6.4.1 LINEUPS for 4-team ALLIANCES

If an ALLIANCE has 4 members (either because a 3-team ALLIANCE has called a BACKUP TEAM or the event is the FIRST Championship), a single representative from the team not on the LINEUP is allowed as a sixteenth ALLIANCE member but must be a member of that team's DRIVE TEAM. This additional representative may only serve as a COACH.

### 10.6.4.2 Default LINEUP

**T609** \***LINEUPS due 2 minutes before the MATCH.** The ALLIANCE CAPTAIN must submit their LINEUP in writing to the Head REFEREE (or their designee) 2 minutes before their expected MATCH start time.

*Violation: Late LINEUPS are denied, and the ALLIANCE'S most recent LINEUP is applied.*

If the Head REFEREE is busy, and there is no designee, the ALLIANCE CAPTAIN remains in the Question Box to report the LINEUP.

If no previous LINEUP exists, the ALLIANCE Lead is assigned DRIVER STATION 2, 1st team selected is assigned DRIVER STATION 1, and the 2nd team selected is assigned DRIVER STATION 3. If any of these 3 ROBOTS are unable to play, the ALLIANCE must play the MATCH with only 2 (or even 1) ROBOT(s).

Example: 3 teams, A, B, and C form an ALLIANCE going into the Playoff MATCHES. 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 Team A, B, or D

If a BACKUP TEAM Coupon is accepted and the LINEUP for the next MATCH is not submitted or it omits the BACKUP TEAM, then the ALLIANCE'S most recent LINEUP is used with the BACKUP TEAM in the position populated by the team for whom they're substituting.

**T610** \***For replays, no changing LINEUPS (mostly).** 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, in the opinion of the Head REFEREE, the ARENA FAULT rendered a ROBOT inoperable, in which case the LINEUP can be changed.

*Violation: The new LINEUP is denied.*

## 10.6.5 Pit Crews

During the Playoff MATCHES and because of the distance between the FIELD and the pit area, extra team members may be needed to maintain and otherwise assist with the ROBOT between MATCHES. Each team is permitted to have up to 3 additional pit crew members to help with needed ROBOT repairs/maintenance.

### 10.6.6 Small Event Exceptions

The scheduling algorithm described in [Section 10.5.2 MATCH Assignment](#) works to minimize teams playing in back-to-back MATCHES. However, at events with fewer than 24 teams, back-to-back plays may occur.

Multi-day events with 24 teams or fewer employ a modified Playoff MATCH format. Instead of 8 ALLIANCES, these events proceed through ALLIANCE SELECTION and the Playoff Tournament with the maximum number of complete 3-team ALLIANCES that can be formed while leaving at least 1 BACKUP TEAM (e.g. a 24-team event creates 7 ALLIANCES, a 20-team event creates 6 ALLIANCES).

$$ALLIANCE\ count = \frac{team\ count - 1\ BACKUP\ TEAM}{3}, rounded\ down$$

The Playoff Bracket remains as shown in Figure 10-2, with any matchup against a non-existent ALLIANCE resulting in a bye (i.e. automatic advancement to the next round). An ALLIANCE assigned a bye-MATCH is invited, though not required, to practice together in a null MATCH (i.e. it has no bearing on the Playoff tournament) during the designated time in the Playoff schedule.

District points for Draft Order Acceptance (per [Section 11.1.2 ALLIANCE Selection Results](#)) are awarded as if a full set of ALLIANCES was selected (i.e. the 2<sup>nd</sup> selection of the 3-seed ALLIANCE still receive 3 points regardless of how many ALLIANCES are formed).

