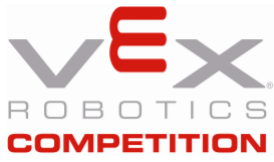




ROBOTICS EDUCATION & COMPETITION FOUNDATION

VRC Tower Takeover
Referee Guide



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Overview

This guide has been prepared for use by Head Referees and Scorekeeper Referees in preparation for the 2019-20 VRC Tower Takeover season. This guide does not replace the Game Manual or referee training videos, but rather assists Referees referencing those resources along with a list of best practices. Refereeing is one of our most challenging and rewarding volunteer positions. Thank you for your willingness to make the VEX Robotics Competition a success by volunteering as a Referee.

Referee Position Summary

There are two different types of Referees, Head Referees and Scorekeeper Referees. Each event (or division if an event is comprised of multiple divisions) should have one (1) Head Referee and each field should have two (2) Scorekeeper Referees. The Robot Skills Field should have one (1) Scorekeeper Referee.

Referees observe matches, identify rule violations, and enforce the VRC Tower Takeover manual as written. They keep track of all game objects scored and record these results on a score sheet or scoring tablet. Referees also keep track of the match time and ensure that matches are running in a timely-fashion.

Refereeing at a VRC event is different from a traditional sporting event in that the Referees actually HELP the competitors avoid breaking rules. For example, you will note in this guide we like to caution Drive Team members when they are getting close to an infraction, rather than watching passively until a violation has occurred.

Referee Key Attributes

Referees interact directly with teams and other event staff and need to have the following skills:

1. Thorough knowledge of the current game and rules of play.
2. Effective decision making
3. Attention to detail
4. Ability to work effectively as a member of a team
5. Ability to be confident and assertive when necessary
6. Strong communication and diplomacy skills

Referee Qualifications

Head Referees Must:

1. Be at least 20 years of age.
2. Be approved by the Event Partner.
3. Contain all the attributes in the Referee Key Attributes section found above.
4. If the event qualifies teams to VEX Worlds, the Head Referee must be a REC Foundation Certified Head Referee for the VRC 2019-20 season.

Scorekeeper Referees Must:

1. Be at least 19 years of age.
2. Be approved by the Event Partner.
3. Contain attributes 1-5 in the Referee Key Attributes section found above.

Referee Key Responsibilities

The Head Referee and Scorekeeper Referees work together, but each have specific roles and duties.

Head Referee

The Head Referee needs to have the following skills:

1. Trains Scorekeeper Referees. Ensuring they are fully versed in game rules
2. Acts as the liaison between the teams and the Scorekeeper Referees
3. Works with the Event Staff to ensure that matches are proceeding on time
4. Works with the Lead Inspector to ensure that all robots are safe and rule compliant
5. Makes all final scoring decisions and rulings
6. Discusses any rules or ruling questions with teams
7. Makes the final check that the field and teams are properly set before start of the match

Scorekeeper Referee

The Scorekeeper Referee needs to have the following skills:

1. Brings possible rule violations to the attention of the Head Referee.
2. Discusses possible rule violations with the Head Referee after the match.
3. Records the number of scored objects or field elements and communicates those to each Alliance.
4. Communicates with the teams and event staff when the field is ready to be reset.
5. Ensures that the field gets reset properly and that the robots are positioned correctly with pre-loads before the Head Referee's final check.
6. If serving as a Scorekeeper Referee for a Robot Skills Match, communicates final scoring decisions and rulings with teams. If there is a dispute of the score or ruling, the Head Referee will be asked to make the final scoring decision and ruling.

Referee Training and Preparation

In addition to this guide, the following resources are essential in preparing you for your Referee role. If this is your first time being part of a VRC event, we recommend that you do these in the following order to help you best understand your role and the VRC Tower Takeover game.

Essential Resources

Please review these essential resources:

1. [Official Game Video](#)
2. [Official Game Manual](#)
3. Referee Training Videos – (released in September)
4. Robot Inspection Checklists
 - a. [Cortex](#)
 - b. [V5](#)

Additional Recommended Resources

Reviewing the following helpful resources is recommended:

1. [Official Q&A Forum](#)
2. Official VRC Hub App
 - a. [iOS](#)
 - b. [Android](#)
3. [Head Referee Match Anomaly Log](#)

Referee Certification

Head Referees at events that qualify teams directly to the VEX Robotics World Championship are required to be certified, however, we recommend that all Head Referees obtain their certification no matter what level event for which they are volunteering. The team experience is much more positive when the Head Referee is fully versed in the rules and how to manage the competition area. There is no fee or charge to become a Certified Head Referee. Ask your Event Partner or REC Foundation Regional Support Manager how to become a Certified Head Referee.

Referee Task List

The following is a list of the major tasks the Referees are responsible for during a match cycle.

Pre-Match

1. Check to make sure game objects are in the correct places after the last field reset.
2. Ensure that all team members are within the Alliance Station and no more than 3 Drive Team members are present for each team.
3. Check that each team has securely connected Field Control cables to main joystick.
 - a. Turn robot and joystick off when coming to the field.
 - b. Connect cables from the Field Control to main joystick of each team.
 - c. Turn on the robot and the joystick(s)
 - d. Start program
 - e. Radio Antenna should turn from Red to Green on V5 robots. Green means that the robot is connected to the field with the correct firmware and is ready for the match to start.
4. Verify all robots are turned on and the joysticks have connection to the robot.
5. Verify all robots are of a legal starting size and in a legal starting position with pre-load
6. Verify that the spectators are not in the competition area
7. The Head Referee asks if the Blue Alliance is ready, then asks if the Red Alliance is ready before starting.
 - a. If they are not ready, look at the scheduled start time and then decide how much time you can give them before starting the match without them. Try to give as much time as possible without running behind schedule. Waiting 5 seconds for a robot to connect is better than having that team sit out a match. But waiting 3 minutes for a team to fix a broken robot is probably too much time to wait.
 - b. If a team is not present, wait until the scheduled start time, then start without them. If you see them approaching the field, use your best judgement on if you can wait or have to keep things moving.
 - c. If a team cannot get their robot into a proper configuration in a timely fashion, then remove the robot and start the match.

Autonomous Period

1. Watch the Drive Team members in the Alliance Station to be sure that they are not controlling the robot, touching the robot, touching the playing field, or any field or game elements.
 - a. If the robot isn't working, they may not touch the robot during this period.
2. Watch for robots crossing the Autonomous Line or touching Towers or Cubes on the opposing side.
 - a. They may not touch the gray field tiles on the opposite side.
 - b. They may not touch Towers on the opposite side.
 - c. They may not touch Cubes on the opposite side. Cubes on the line are considered to be on both sides and can be utilized by either alliance. **<SG2>**
3. Quickly determine who wins the Autonomous Bonus.
 - a. Do not count the exact score unless necessary. You just need to determine which alliance scored the most.
 - b. Be sure to hand the two (2) Match Load Cubes to the winning alliance, or one (1) Match Load Cube to each alliance in the event of a tie. If no robots score, it is a tie.

Driver Controlled Period

1. Immediately start the Driver Controlled Period after the Head Referee announces who has won the Autonomous Bonus and the Match Load Cubes have been awarded. Do not ask if the Drive team members are ready again.
2. Watch for any instances of Drive Team members touching robots or breaking the plane of the field, when not explicitly allowed by the **<G8>**.
3. Watch for any rules violations, verbally cautioning them when you see a robot come close to a violation. This is not a warning, as warnings become DQs if there are many. Give out cautions all day long. If a rules violation calls for a disablement, give that immediately. If a rules violation calls for a DQ, wait until the end of the match (see Post-Match).

Post-Match

1. Discuss any possible rules violations with the Referees. Refer to the VRC Game manual to determine the appropriate criteria and consequences for the specific violation. The Head Referee should talk to the Drive Team members about any violations.
 - a. If giving a Warning, the Head Referee should make note of the team on the Head Referee Match Anomaly Log.
 - b. If giving a DQ, the Head Referee **MUST** tell the Drive teams the exact rule and number that was violated. If the Head Referee cannot find the rule, then the team cannot be DQ'd. Use the other Referees or Event Staff to help look up a rule if needed. There is no fixed time limit on this. Tell the team that you need to find the rule and will determine if the rule was violated before they play their next match. Record the DQ on the Head Referee Match Anomaly Log and on the Score Sheet or tablet.
2. Head Referee should survey the field and make any scoring calls that are close.
3. Head Referee moves onto the next field to start the next match while the Scorekeeper Referees record the score of the match.
 - a. When scoring the match, count out loud so that both Alliances hear what is being scored. For example, say, "2 Green Cubes in Towers, 1 Purple Cube in Towers, Red has 2 Orange Cubes and 3 Green Cubes in Goals, Blue has 3 Purple Cubes and 1 Green Cube in Goals."
 - b. After the match is recorded, but before saving, show both Alliances the score sheet or tablet to confirm.
4. If there are unanswered questions or disputes, the Scorekeeper Referees will get the Head Referee to come back and resolve any dispute or answer any questions from the Drive Team members as soon as the Head Referee is able. This might be after the next match.

5. Once the score has been confirmed, signal the field reset crew to reset the field and have the next teams prepare their robots for the next match.

Referee Best Practices

Other than scoring, a referee's primary role is to watch for violations and "call" them. Since the most common penalty in the VEX Robotics Competition is a Disqualification for that Match, *please help to caution and guide teams before they violate the rules.*

The teams have put a lot of time and effort into the competition; it is the philosophy of the VEX Robotics Competition to be helpful rather than punitive when it comes to refereeing.

Waiting just a few seconds for a team to be ready will have a compounding effect on the match schedule. Instead, help the teams get setup and prepared for the match so that when the start time approaches, the teams are already in place and ready to compete. If the Scorekeeper Referees can have everything setup by the time the Head Referee gets back to the field, the event will run on time and at a more relaxed pace for the staff and competitors.

Scorekeeper Referees need to be careful to not answer rule questions to the teams. The Head Referee does this and needs to be consistent in the answers given to all teams. If there is disagreement between the Head Referee and the Scorekeeper Referees, look up the rule. If you cannot find it, then it might not exist. Don't make up rules based on how you think the game "should be" played. The game is designed without one strategy in mind, so teams will play the game very differently from each other. This can look like rule violations to the untrained eye.

List of Tips

1. Caution teams if they are close to being penalized.
2. Make the necessary calls, even if violations happen unintentionally.
3. Be fair and consistent to all teams.
4. Be friendly and positive.
5. Remember that a referee's job is to enforce the rules as written, not as a referee thinks they should be written. Global consistency is key in ensuring the integrity of competition.
 - a. Do not invent, modify, or ignore rules.
 - b. Do not penalize teams who are not playing in a way that a referee "feels" is right.
6. If a team violates a rule that calls for them to be disabled, the easiest way to disable them is to have the drivers turn off their joysticks and place them on the ground.
7. Be very vocal and visual when making calls. This way the audience and the teams will be aware of what is happening.
 - c. For example, when counting a team who is trapping, make large arm gestures as you count. This way the team will know that they should back off, and the audience will be aware of the infraction.
8. Direct all team questions to the Head Referee. The Head Referee should be the only person discussing rulings with the teams. When multiple Referees are explaining rulings to the teams, inconsistencies in verbiage can easily arise.
9. The Head Referee (and only the Head Referee) should explain all controversial rulings and close calls to the teams. This level of communication is a positive experience for the teams.
10. When it comes to issues such as Disqualifications, often Referees will want to rule leniently to avoid being too harsh. Unfortunately, by not punishing a team for a rules violation, you directly punish their opponent. As unpleasant as it is, if a team violates a rule that is punishable by Disqualification, the team must be Disqualified. It is the only fair thing to do.
11. If possible, attend some practice rounds to get the feeling for a typical gameplay and start establishing a match flow a system between all Referees and other event staff.