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Section:Administrative Manual

6.2 COMPLETE AWARDS LIST

Award	Description	Selected By	Regional	District	District CMP	FIRST CMP Division	FIRSTCMP
Chairman's Award	The most prestigious award at <i>FIRST</i> , it honors the team that best represents a model for other teams to emulate and best embodies the purpose and goals of <i>FIRST</i>	Chairman's Judge Panel (application and interview process)	X	X	X		X
Creativity Award <i>Sponsored by Xerox</i>	Celebrates creativity in design, use of component, or strategy of play.	Judges	X	X	X	X	✖
Engineering Inspiration Award	Celebrates outstanding success in advancing respect and appreciation for engineering within a team's school and community.	Judges	X	X	X	X	✖
Entrepreneurship Award <i>Sponsored by Kleiner Perkins Caufield & Byers</i>	Celebrates the entrepreneurial spirit by recognizing a team that has developed the framework	Judges	X	X	X	X	✖

	for a comprehensive business plan to scope, manage, and achieve team objectives.						
Excellence in Engineering <i>Sponsored by Delphi</i>	Celebrates an elegant and advantageous machine feature.	Judges	X	X	X	X	✕
<i>FIRST</i> Dean's List Award	Celebrates outstanding student leaders whose passion for and effectiveness at attaining <i>FIRST</i> ideals is exemplary.	Dean's List Judge Panel (nomination & interview process)	X		X		X
<i>FIRST</i> Future Innovator Award <i>Sponsored by the Abbott Fund</i>	Celebrates innovation and intellectual property creation inspired by the <i>FIRST</i> season experience.	<i>FIRST</i> Future Innovator Award Judge Panel					X
Founder's Award	Recognizes the organization or individual that has contributed significantly to the growth of <i>FIRST</i> .	<i>FIRST</i>					X
Gracious Professionalism [®] Award	Celebrates outstanding sportsmanship and continuous	Judges	X	X	X	X	✕

<i>Sponsored by Johnson & Johnson</i>	gracious professionalism in the heat of competition, both on and off the playing field.						
Highest Rookie Seed Award	Celebrates the highest-seeded rookie team at the conclusion of the qualifying rounds.	Robot Performance	X	X	X	X	
Imagery Award <i>In honor of Jack Kamen</i>	In honor of Jack Kamen, Dean's father, for his dedication to art and illustration and his devotion to FIRST. This award celebrates attractiveness in engineering and outstanding visual aesthetic integration of machine and team appearance.	Judges	X	X	X	X	✘
Industrial Design Award <i>Sponsored by General Motors</i>	Celebrates form and function in an efficiently designed machine that effectively addresses the game challenge.	Judges	X	X	X	X	✘
Industrial Safety Award	Celebrates the team that progresses	Safety Advisors	X	X	X	X	✘

<i>Sponsored by Underwriters Laboratories</i>	beyond safety fundamentals by using innovative ways to eliminate or protect against hazards.						
Innovation in Control Award <i>Sponsored by Rockwell Automation</i>	Celebrates an innovative control system or application of control components - electrical, mechanical or software - to provide unique machine functions.	Judges	X	X	X	X	X
Judges' Award	During the course of the competition, the judging panel may decide a team's unique efforts, performance, or dynamics merit recognition.	Judges	X	X	X	X	
Media & Technology Innovation Award <i>Sponsored by Comcast NBCUniversal</i>	Award recognizes the team that develops and implements the most outstanding digital experience, marketing strategy, and rationale for digital channels to	Comcast NBCUniversal					X

	disseminate content to its audience and further theFIRST mission.						
Quality Award	Celebrates machine robustness in concept and fabrication.	Judges	X	X	X	X	✕
<i>Sponsored by Motorola</i>							
Rookie All Star Award	Celebrates the rookie team exemplifying a young but strong partnership effort, as well as implementing the mission of FIRST to inspire students to learn more about science and technology.	Judges	X	X	X	X	
Rookie Inspiration Award	Celebrates a rookie team's outstanding success in advancing respect and appreciation for engineering and engineers, both within their school, as well as in their community.	Judges	X	X	X	X	
Safety Animation Award	Recognizes the team that submits a short animated film that best	UL	n/a	n/a	n/a	n/a	n/a

*This is a pre-season award	promotes the current season's team safety focus.						
Team Spirit Award <i>Sponsored by Chrysler</i>	Celebrates extraordinary enthusiasm and spirit through exceptional partnership and teamwork furthering the objectives of FIRST.	Judges	X	X	X	X	X
Volunteer of the Year Award	Presented to an individual, business, or organization that consistently excels in their efforts with proven results in the areas of Impact, Leadership, Personal Commitment, Community and Historical Contributions.	Regional/District Planning Committee	X		X		X
Woodie Flowers Award <i>Sponsored by Dr. William Murphy</i>	Is presented to an outstanding Mentor in the robotics competition who best leads, inspires, and empowers their team using excellent communication skills.	Prior WFA Winners	X		X		X
Finalist	Celebrates the alliance	Robot Performance	X	X	X	X	X

	that makes it to the final match of the competition						
Winner	Celebrates the alliance that wins the final match of the competition	Robot Performance	X	X	X	X	X
<i>New This Year</i> <i>FIRST 3D Printing Award</i> <i>Sponsored by America Makes and ORNL</i>	Recognizes the creative use of 3D printing to provide innovative design solutions, resolve manufacturing challenges, enhance marketing solutions, and engage in community outreach.	America Makes and ORNL					X

6.4.3.4 Interview Process and Video Requirement

All teams submitting for the Chairman's Award will need to sign up at pit admin in order to be interviewed by the Judges at the event. If a team does not sign up for an interview slot, they will be considered ineligible to win at that event. Chairman's Award interviews are limited to ten minutes total; five minutes for a presentation by the team (which includes set-up) and up to five minutes of question and answer led by the Judges. Not more than three (3) team members, of which one (1) may be an adult mentor, are allowed to attend the interview. **Only student (non-mentor) team members are allowed to present information or answer questions from the Judges.** The one (1) adult mentor from the team who may attend may observe and later provide feedback to the team, but the mentor is not allowed to provide any assistance during the interview itself. If the mentor provides any assistance during the interview, the team will be downgraded. Exception: If necessary, **the an adult mentor/assistant present** may provide translation services for students needing foreign language or sign language translation so the students and Judges may communicate. **This adult mentor/assistant may be in addition to the three (3) Team members noted above, but may provide no assistance to the team other than the translation service.**

5.3 INSTRUCTIONS FOR "BAG AND TAG"

Information on where to obtain additional tags can be found on the *Where to Get More* document on the [Kit of Parts](#) website.

1. Bag and Tag your robot on Stop Build Day, and complete the *Robot Lock-Up Form*.

The Proper Bagging Procedure:

- Set the bag on the floor, leaving room for the robot in the center.
 - Bags are provided in the Kickoff Kit for your convenience; however there is no requirement that Teams use those exact bags. Any commercially available clear bag large enough to contain the Robot may be used.
- Place the robot in the center of the bag and pull the bag up around the robot. Be careful not to catch the bag on any corners or sharp edges.
- Tightly seal the bag with your next numbered tag.
 - If you run out of the tags supplied, you may use any commercially available serialized security tags
 - If you need to lock up your robot and are not able to obtain additional tags in time, you may use a cable tie and create a numbered label yourself.
 - Inspectors will pay close attention to these home-made tags. Be prepared for additional discussion

6.4.3.4 Interview Process and Video Requirement

All teams submitting for the Chairman's Award will need to sign up at pit admin in order to be interviewed by the Judges at the event. If a team does not sign up for an interview slot, they will be considered ineligible to win at that event. Chairman's Award interviews are limited to ten minutes total; five minutes for a presentation by the team (which includes set-up) and up to five minutes of question and answer led by the Judges. Not more than three (3) team members, of which one (1) may be an adult mentor, are allowed to attend the interview. **Only student (non-mentor) team members are allowed to present information or answer questions from the Judges.** The one (1) adult mentor from the team who may attend may observe and later provide feedback to the team, but the mentor is not allowed to provide any assistance during the interview itself. If the mentor provides any assistance during the interview, the team will be downgraded. Exception: If necessary, the **an** adult mentor/assistant present may provide translation services for students needing foreign language or sign language translation so the students and Judges may communicate. This adult mentor/assistant may be in addition to the three (3) Team members noted above, but may provide no assistance to the team other than the translation service.

Section 6.12: FIRST 3D Printing Award sponsored by America Makes and ORNL

Section 6.12.1: Award Overview

The 3DPA competition is open to all FRC teams for the 2014 FRC competition season. To be eligible, teams must have a functional (not cosmetic) 3D Printed part **or 3D Printed assembly** that is intended for use on their competition ~~robot~~ **ROBOT or OPERATOR CONSOLE**. FRC Teams may apply at the 3DPA Portal. The 3DPA Portal will be open for submissions according to the dates listed in Section 6.3.1.

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General Update

For those Teams forced to be apart from their Robots on Stop Build Day due to school closings, Frank published a blog that provided those Teams with an acceptable alternative. The edit below is only to formalize the process and make it officially FRC-legal in the Manual.

Section 5.1: Stop Build Day

All teams must cease work on their robot on or before Stop Build Day. Any team that fails to comply may jeopardize their participation in the rest of the FRC season. If the team is not able to access their robot on Stop Build Day for bagging (e.g. the team's school is closed due to weather), the team will be able to bag late without penalty. The team may not perform more work on their robot after midnight Stop Build Day. The team may only take their robot, as it was on midnight of Stop Build Day, and put it in the bag after that time, without performing any additional work. The team should note on the Robot Lock-Up Form the reason for the late bag closure.

Section 5.3: Instructions for "Bag & Tag"

Each team will receive a special "Bag and Tag" kit in January with their Kit of Parts (KoP). The kit will contain:

- two plastic bags large enough to contain your robot; and
- at least six zip tie tags with individual serial numbers.

Information on where to obtain additional tags can be found on the Where to Get More? document on the [Kit of Parts](#) website.

1. Bag and Tag your robot on Stop Build Day, and complete the *Robot Lock-Up Form*.

The Proper Bagging Procedure:

- Set the bag on the floor, leaving room for the robot in the center.
- Place the robot in the center of the bag and pull the bag up around the robot. Be careful not to catch the bag on any corners or sharp edges.
- Tightly seal the bag with your next numbered tag.
- Complete the *Robot Lock-Up Form* as required in *Section 5.5* to verify the date and time that the bag was sealed.
- **If required, the Team may use two (2) bags to facilitate easier robot transportation. The second bag must also be sealed with a numbered tag and logged on the *Robot Lock-Up Form*.**

2. You may **NOT** open your bag until:

a) it has been checked, approved by an on-site inspector, AND

b) the pits have officially been opened for robot work. You must have your *Robot Lock-Up Form* ready for review at the event. DO NOT forget to bring it.

3. After your *Robot Lock-Up Form* has been properly checked and approved, your team may open the bag and prepare to compete.
4. After the event, if you are attending another event, such as the Championship or another Regional or District event, re-seal your robot in the bag with a new tag and enter the new tag number on the *Robot Lock-Up Form*. You may not access your robot again until the next event, unless you are attending a Two-day District event, as explained in *Section 5.6*.
5. Remove your robot from the event through the designated exit.
6. If you are attending the Championship as your next event, or have been granted an Exemption to ship your robot to an additional event, follow the instructions listed in *Section 5.7*.

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Section 5.4.3: Robot Displays

New this year! To assist teams with their promotional and community relations activities, robots may be unbagged and operated briefly after “Stop Build Day” for display purposes only.

- The intent of this option is to allow teams to briefly show their robot to their community, sponsors, or potential sponsors after “Stop Build Day”.
- o Unbagging a robot and putting it on display for many hours (i.e. more than four (4)) at a time would not be considered a ‘brief’ display
- The Robot Lock-Up Form must be used to track the unbagging and rebagging of the robot during this period. In the ‘Explanation’ column of the form, enter ‘Robot Display’
 - No activity that could be considered ‘work on’ or ‘practice with’ the robot is allowed
 - Brief displays of robot functions – driving, for example – are allowed, but not to the extent that they could be considered practice
- o A good way to avoid turning a robot display period in to a practice session is to have non-drive team members operate the robot, and only for as short a time as necessary to show the robot’s capabilities
- If you have any questions about this new Robot Display option, please email frcteams@usfirst.org

Section 5.6.2: ‘Robot Access Period’ - Schedule

Teams may unlock their robot for a total of 6 hours during the 7-day period preceding any two-day event in which their team will be competing with their robot. The 6 hours may be broken up in any way the team wishes, with the exceptions that no single access period may be shorter than ~~2 hours~~ **30 minutes and the team may not have more than 3 access periods prior to each event**. The robot must be locked up in between sessions and this must be documented on the Robot Lock-Up Form each time.

Section 6.4 THE CHAIRMAN'S AWARD

Section 6.4.3.4 Interview Process and DVD Video Requirements

All teams submitting for the Chairman's Award will need to sign up at pit admin in order to be interviewed by the Judges at the event. If a team does not sign up for an interview slot, they will be considered ineligible to win at that event. Chairman's Award interviews are limited to ten minutes total; five minutes for a presentation by the team (which includes set-up) and up to five minutes of question and answer led by the Judges. Not more than three (3) team members, of which one (1) may be an adult mentor, are allowed to attend the interview. **Only student (non-mentor) team members are allowed to present information or answer questions from the Judges.** The one (1) adult mentor from the team who may attend may observe and later provide feedback to the team, but the mentor is not allowed to provide any assistance during the interview itself. If the mentor provides any assistance during the interview, the team will be downgraded. Exception: If necessary, the adult mentor present may provide translation services for students needing foreign language or sign language translation so the students and Judges may communicate.

Teams submitting for the Chairman's Award must provide a DVD video to the judges at the start of their Chairman's Award interview. The content of the video should explain what the team has done to earn the Chairman's Award. The video content may be in the team's native language, but if that language is not English, the team must add English subtitles to be eligible for the Chairman's Award at any event in the US or Canada, or at any non-US or Canadian event at which their native language is not generally spoken. The video may be shown to the judges during the team's 5 minute presentation time or the team can choose to not show the video during the presentation time. Even if the video is NOT shown during the interview, a DVD video must still be provided to the Judges in order for the team to be considered for the Chairman's Award. In addition, the team must provide the equipment for viewing (i.e. laptop/speakers etc.) the video. Teams who do not submit a DVD video to the judges will not be considered eligible for the Chairman's Award and will not be interviewed by the judges. This is applicable at all events including the *FIRST* Championship.

Note: Any team that submitted for the Chairman's Award and wants their DVD video back at the end of the event will need to collect their DVD video, after the awards ceremony, from Pit Administration. In addition, the winning Chairman's Award team will also be required to bring a copy of their DVD video to the *FIRST* Championship. Therefore, the winning team must also collect their DVD video after the awards ceremony if they want to bring that copy to Championship.

The DVD video format should be as follows:

- A 16:9 ("widescreen aspect ratio")
- Not more than 3 minutes long, no shorter than 1 minute long.
- Include a clean audio track
- Free of copyright restrictions, including music.

DVD Video may consist of:

- Video footage
- Voice over/music over still photographs
- Animated presentation
- PowerPoint converted to ~~DVD~~ **video** format

Note: Teams do not have to use professional equipment to get professional results. There is a good chance that someone on your team or in the school does this as a hobby and can be recruited to help.

Sound

- Should be clear of pops and hisses

Copyright:

- If using copyrighted music must have written permission
- If using Creative Commons Music (CCM) on line, the music must be used in accordance with the appropriate license and properly attributed.
- Music may not contain obscene or suggestive language

Content Guidelines:

- Please show us what you are doing to earn the Chairman's Award
- Please **do not** identify non-team minors by name or specific location. Use only first names, **no** locations.

Other required information to be given to the judges (to be included on the cover of the jewel case) :

~~§ Your team number (also include on the front of the DVD)~~

~~§ Your team name (also include on the front of the DVD)~~

~~§ The Regional/District competition you are entering~~

~~§ Your corporate and university sponsors~~

· ~~§~~ Permission for *FIRST* to use your video in marketing & promotional material and/or live at *FIRST* events & competitions, using the [Chairman's Award Video Consent Form](#)

New this year, Videos may be submitted to the Judges either on DVD or USB Flash Drive

DVD Requirements:

- Ensure that your DVD is actually a DVD file, playable with a standard DVD player. If we cannot view your DVD, you may be ineligible for the award.
- DVD itself must be labeled with your team number and team name
- DVD case or envelope must also be labeled with your team number and team name
- A completed Chairman's Award Video Consent Form (see above) must be folded and included in the DVD case or envelope

USB Flash Drive Requirements:

- USB Flash Drive must contain only the Chairman's Award video file
- Video file must be in the QuickTime (.mov) or Windows Media (.wmv) file format compressed with the H.264/MPEG-4 codec

- USB Flash Drive itself must be labeled with your team number, at a minimum. If you have room, please add your team name as well. Consider using a label maker or a piece of tape and permanent marker. Ensure the label is secure and the team number is easily read.
- To reduce the chance of the USB Flash Drive being misplaced, the Drive must be placed in a clear, sealable plastic bag before it is given to the Judges. Label the bag with team number and name. This label may be a piece of paper, printed with the required information, inserted in the bag and oriented so it may be read without opening the bag
- A completed Chairman's Award Video Consent Form (see above) must be folded and included in the plastic bag

Note 1: Please ensure that your DVD is actually a DVD file. Files with extensions like .mov., .avi., or .wmv. may not play on equipment at the event. If we cannot view your DVD, you may be ineligible.

Note 2: The Chairman's Award is our highest honor and teams who receive the Chairman's Award represent the highest standards of FIRST. When the Chairman's judges have narrowed the selection to two or three teams, these contenders for the Chairman's Award at all events will have their DVD video viewed by the Judge Advisor for appropriate content and to ensure that the above guidelines have been met. Although the Chairman's judges will not be judging your video as part of your submission, a DVD video with inappropriate content will disqualify a team for the award.

Section 6.8: MEDIA AND TECHNOLOGY AWARD sponsored by Comcast NBCUniversal

Section 6.8.4: Submission Process

Teams should upload their PDF-formatted submission through the Comcast Media and Technology Award website at (~~coming soon~~) <http://firstrobotics.comcast.net/>. Submission will be accepted during the dates listed in [Section 6.3.1](#).

Submissions are not to exceed two pages including graphics. The maximum allowable size for the PDF document submission is 50MB. Submissions should include and address all judging criteria addressed above. We encourage teams to clearly communicate both strategy and any results that have been tracked (include web site traffic, # of friends and/or followers, likes, etc.). This document must include applicable links, urls and hashtags that provide access to the digital properties you created. This includes, but is not limited to, web and video sites, Facebook pages, Twitter feeds, Pinterest boards, mobile apps, etc.

By making a submission, the Submitter irrevocably grants to FIRST and FIRST designees the right to use any or all of the submission in any and all media for the purpose of describing the submission, describing the Award, and/or otherwise promoting FIRST and FIRST programs.

Section 6.8.5: Submission Dates

Submissions will be accepted during the dates listed in [Section 6.3.1](#).

You may submit your PDF more than once if you need to make revisions. The last version submitted prior to the deadline will be considered your final submission.

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6.10 ENTREPRENEURSHIP AWARD sponsored by Kleiner, Perkins, Caufield & Byers

6.10.2 Guidelines

EXECUTIVE SUMMARY

- **ORGANIZATIONAL STRUCTURE:** Please detail how the team is structured to 1) Raise funds; 2) Ensure funds are properly spent; 3) Find and engage sponsors; 4) Recruit team members/mentors for current & future seasons; 5) Ensure FIRST principles remain core to the team's efforts. Uploading an image of your team organizational chart below, will also satisfy this requirement.

- **(1600 characters allowed, including spaces and punctuation. Graphic image allowed as alternate format in addition to or as an alternative to text - upload 5" x 4" 100 dpi resolution images that end in .JPG or .GIF)**

...

- **FINANCIAL STATEMENT:** Please include information on team finances (include financial statement detailing income and expenditures). Uploading an image of your team financial plan below, will also satisfy this requirement.
- **(1600 characters allowed, including spaces and punctuation. Graphic image allowed as alternate format in addition to or as an alternative to text- upload 5" x 4" 100 dpi resolution images that end in .JPG or .GIF)**

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Section: Interview Process and DVD Requirement

Teams submitting for the Chairman's Award must provide a DVD to the judges at the start of their Chairman's Award interview. The content of the video ~~must be in English and~~ should explain what the team has done to earn the Chairman's Award. **The video content may be in the team's native language, but if that language is not English, the team must add English subtitles to be eligible for the Chairman's Award at any event in the US or Canada, or at any non-US or Canadian event at which their native language is not generally spoken.** The video may be shown to the judges during the team's 5 minute presentation time or the team can choose to not show the video during the presentation time. Even if the video is NOT shown during the interview, a DVD must still be provided to the Judges in order for the team to be considered for the Chairman's Award. In addition, the team must provide the equipment for viewing (i.e. laptop/speakers etc.) the video. Teams who do not submit a DVD to the judges will not be considered eligible for the Chairman's Award and will not be interviewed by the judges. This is applicable at all events including the *FIRST* Championship.

Game Manual - Team UPDATE - 2014-04-15

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General Updates

Congratulations to all Teams on a successful FRC Regional Season! Good luck to those Teams competing at the *FIRST* Championship!

[FIRST Choice](#) will close this Friday, April 18, 2014.

The Q&A will be closing for questions at noon Eastern Standard Time on Tuesday, April 22, 2014. Teams having questions about the game after this should bring them to the Drivers' Meeting at Championship on Wednesday, April 23. If you have administrative questions, please email frcteams@usfirst.org.

Section 3: Game Manual

There will be no alteration to scoring values at the *FIRST* Championship, as mentioned in [Section 3.1.4: Scoring](#).

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5.5.6 TIMEOUT and BACKUP TEAM Rules

T17

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.

Once a TIMEOUT coupon is submitted and accepted by the Head Referee, the TIMEOUT coupon may not be withdrawn by the ALLIANCE.

T20

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, through the use of the BACKUP coupon, directly within two (2) minutes of the Head Referee issuing the ARENA reset signal preceding their MATCH.

The ALLIANCE CAPTAIN must indicate on the BACKUP coupon which TEAM'S ROBOT will no longer be participating in MATCHES and initial the BACKUP coupon before it will be accepted by the Head Referee.

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

Once a BACKUP coupon is submitted and accepted by the Head Referee, the BACKUP coupon may not be withdrawn by the ALLIANCE.

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General Announcements

Good luck to all Teams competing in Week 6!

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General Announcements

C++ Update

We've identified a bug in the C++ code that causes an issue for teams using the SmartDashboard with C++ which results in their code locking up unexpectedly. The bug has been fixed and included in an update posted [here](#). This update is strongly recommended, but not required. This update also includes a fix for the match time in the Driver Station class to reflect the 2014 timing, teams currently using GetMatchTime() with a workaround may need to update their code.

5.6 Championship Additions and Exceptions

At the 2014 *FIRST* Championship, Teams are split into four (4) Divisions: Archimedes, Curie, Galileo, and Newton. Each Division plays a standard Tournament as described in [Section 5.3: Qualification MATCHES](#), [Section 5.4: Elimination MATCHES](#), and [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 Division Champions. Those four (4) Division Champions proceed to the Championship Playoffs, on the Einstein FIELD, to determine the 2014 FRC Champions.

There is no provision for BACKUP TEAMS at the Championship.

There is no provision for TEAM TIMEOUTS during the Einstein Tournament; however there will be an automatic FIELD TIMEOUT between each Einstein MATCH (i.e. Einstein MATCHES will be scheduled to accommodate a six (6) minute gap between MATCHES).

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Section 3.2.6: ROBOT-ROBOT Interaction

The rule change to G27 attempts to discourage ROBOT to ROBOT damage, while still allowing defensive play. On the FIELD, we want to encourage FRC Teams to work with their ALLIANCE partners to demonstrate their technical prowess and game play skills. While pushing and bumping are reasonable game play efforts, anything that resembles intentionally damaging behavior is not. Additionally, the change to G27 enables Referees to issue penalties for causing opponent ROBOT damage, even if not strategic or intentional.

The blue box in G28 is being modified to reflect the fact that it is possible for contact between two extended elements to result in a penalty, if the conditions of G27 are otherwise met.

G27

Strategies aimed at and/or game play resulting in the damage, destruction or inhibition of opponent ROBOTS via actions such as high-speed or repeated, aggressive ramming, attachment, damage, tipping, or entanglement of ROBOTS are not allowed.

Violation: FOUL. If strategic, TECHNICAL FOUL. and Potential YELLOW CARD

For example, use of a wedge-like MECHANISM to flip ROBOTS would be considered a violation of G27.

MECHANISMS outside the FRAME PERIMETER are particularly susceptible to causing such damage and drawing this penalty and/or penalties associated with violations of G28. Teams are encouraged to be cautious in their use of such appendages when engaging in ROBOT to ROBOT MATCH play.

G28 (Blue Box only)

High speed accidental collisions may occur during the MATCH and are expected. **Generally**, ROBOTS extend elements outside of the FRAME PERIMETER at their own risk; ~~no penalties will be assigned for contact between two such extended elements.~~

Game Manual - Team UPDATE - 2014-03-18

Section:Game Manual

General Announcements

As a follow up to last week's Team Update, [Team Update 2014-03-11](#), we strongly encourage all teams to replace any 2013, white Clippard tanks distributed via *FIRST* Choice last year. For Teams attending remaining events this season *FIRST* will supply new [Clippard AVT-PP-35](#) tanks for trade at no cost to Teams. Please understand that these are not tanks to be used as "spares" - they are only to be traded for the 2013 white Clippard tanks that are currently on your Robot.

If you're using the white Clippard tanks on your Robot, please check in with the Inspectors at your event as we're having new tanks shipped to their attention.

For those teams that will not be attending any more events this season, did not participate in [Clippard's trade program last year](#), and are thus still using the 2013 white Clippard tanks, please contact frcparts@usfirst.org and we work with you to trade tanks after the 2014 *FIRST* Championship.

We'd like to thank Clippard Instruments Laboratory, Inc. for their rapid response to the tank concerns last year and for their continued support to mitigate safety concerns. They have been a long-time, generous Supplier to the *FIRST* Robotics Competition, and their generosity is greatly appreciated.

Section 3.1.2: MATCH Logistics

If an ALLIANCE'S BALL becomes stuck in **or permanently trapped by** an ALLIANCE'S ROBOT, the ALLIANCE may signal to the Head Referee that the BALL is "dead" by holding the yellow "DEAD BALL" placard against the DRIVER STATION acrylic.

If an ALLIANCE'S BALL becomes stuck in **or permanently trapped by** an opposing ALLIANCE'S ROBOT, the Head Referee will signal an extended infraction of G12 (the assumption is that the ALLIANCE has already been penalized for the initial G12 infraction).

Section 3.2.3: General Rules

G12

An ALLIANCE may not POSSESS their opponent's BALLS. The following criteria define POSSESSION:

- A. "carrying" (moving while supporting BALLS in or on the ROBOT or holding the BALL in or on the ROBOT),
- B. "herding" (repeated pushing or bumping),
- C. "launching" (impelling BALLS to a desired location or direction via a MECHANISM in motion relative to the ROBOT), or
- D. "trapping" (overt isolation or holding one or more BALLS against a FIELD element or ROBOT in an attempt to shield them).

Violation: **FOUL**, if unintentional and inconsequential (i.e. does not significantly impact MATCH play). **TECHNICAL FOUL** per consequential instance. **TECHNICAL FOUL** per extended instance. **if**

extended, another *TECHNICAL FOUL*. If strategic, *RED CARD* for the *ALLIANCE*.

Examples of BALL interaction that are not POSSESSION are

- A. “bulldozing” (inadvertently coming in contact with BALLS that happen to be in the path of the ROBOT as it moves about the FIELD) and
- B. “deflecting” (a single hit to or being hit by a BALL that bounces or rolls off the ROBOT or a BALL slips through the grips of a ROBOT without arresting the BALL'S momentum).

A BALL that becomes unintentionally lodged on a ROBOT will be considered POSSESSED by the ROBOT. It is important to design your ROBOT so that it is impossible to inadvertently or intentionally POSSESS an opponent's BALL.

The intent of G12 is to prevent an ALLIANCE from inhibiting an opponent's ability to interact with their BALL, but accommodate accidental inconsequential actions by way of fewer FOUL points. Actions which are perceived as consequential and extended are distinct violations, as there are scenarios where POSSESSION of an opponent's BALL could be consequential or extended but not necessarily both.

Section 4.1: General ROBOT Design

R1

Each registered FRC team may enter only one (1) ROBOT (or ‘Robot’, which to a reasonably astute observer, is a Robot built for FRC) into the 2014 FRC. A Robot is any The ROBOT must be built by the FRC Team to perform specific tasks when competing in AERIAL ASSIST. The ROBOT must include all of the basic systems required to be an active participant in the game – power, communications, control, and mobility. The ROBOT implementation must obviously follow a design approach intended to play AERIAL ASSIST (e.g. a box of unassembled parts placed on the FIELD, or a ROBOT designed to play a different game would not satisfy this definition).

Section 4.8 Power Distribution

R31

The only legal source of electrical energy for the ROBOT during the competition, the ROBOT battery, is one of the following approved 12VDC non-spillable lead acid batteries:

- A. Enersys (P/N: NP18-12)
- B. MK Battery (P/N: ES17-12)
- C. Battery Mart (P/N: SLA-12V18)
- D. Sigma (P/N: SP12-18)
- E. Universal Battery (P/N: UB12180)
- F. Power Patrol (P/N: SLA1116)
- G. Werker Battery (P/N: WKA12-18NB)
- H. Power Sonic (P/N: PS-12180 NB)
- I. Yuasa (P/N: NP18-12B)
- J. Panasonic LC-RD-1217
- K. Interstate Batteries BSL1116
- L. Enersys (P/N: NP18-12BFR)

M. **Energysys (P/N: NP18-12B)**

Exception: Batteries integral to and part of a COTS computing device or self-contained camera are also permitted (e.g. laptop batteries), provided they're only used to power the COTS computing device and any peripheral COTS USB input devices connected to the COTS computing device and they must be securely fastened to the ROBOT.

~~To seek approval for an equivalent battery, please contact freparts@usfirst.org with the battery supplier and part number. Approved batteries will be added to the list above.~~

Game Manual - Team UPDATE - 2014-03-11

Section:Game Manual

General Updates

During the 2014 FRC Season, two FRC teams have experienced major failures of the white plastic Clippard pneumatic storage tanks distributed via *FIRST* Choice in 2013. Two additional failures occurred during the 2013 FRC Season. In one of the 2014 situations, a metal hose clamp was used to secure the tank to the robot. The clamp was over-tightened, causing improper stress on the tank. In the second situation, the team was attempting to fix a leak between the tank and the metal fitting while the tank was pressurized. Thankfully, no one was hurt in either of these situations.

As we said in a [blog post last year](#), there are some steps a team can take to help mitigate the risks of a failure in this manner.

1. Do not work on any part of the pneumatic system while it is pressurized. If you need to tighten a fitting, release the pressure from the system, tighten the fitting, and then repressurize the system to check for leaks.
2. Use the FRC Robot Control System to pressurize the pneumatic system. Robot Rule R80 requires the compressor to be controlled and powered by the robot, even if the compressor is off-board. Powering the compressor directly from a battery is not only illegal, it is unsafe.
3. Clippard recommends using 2-4 layers of PTFE tape on the fitting. Using more than this could increase stress around the plastic threads, weakening the tank.
4. Tighten the ¼" NPT fitting to 10-12 inch pounds (do not to exceed 15 inch pounds). Over-torquing NPT threads in plastic pressure tanks can introduce stress and cracks that could lead to failures. Do not measure installation based on distance or number of threads exposed as there is a large variance on NPT threading from a variety of manufacturers.
5. If there is a leak detected, **do not** continue threading in the fitting. Remove the fitting and reapply the tape sealant.
6. If possible, use the provided attachment method for securing the tank to the robot. Do not use attachment methods that introduce extra stress or deform the tank.
7. Protect the tanks. This game has seen a lot of high speed interaction between robots on the field. Sometimes, pieces from one robot reach into and contact pieces inside another robot. A thin sheet of plastic can help protect both pneumatic and control system components inside the robot.
8. Don't use chemicals on plastic tanks that can erode or compromise the integrity of the tank material.

Section 3.2.5: ROBOT Actions

G26-1

ROBOTS may not break the planes of the openings of the opponent's LOW GOAL **in an attempt to impede opponent SCORING in that GOAL.**

Violation: FOUL. If extended, strategic, or repeated, TECHNICAL FOUL.

Situations violating this rule include, but are not limited to, having part of the ROBOT inside the opponent's LOW GOAL for an extended period of time (regardless of intent) and having part of the ROBOT inside the LOW GOAL while an opponent ROBOT is attempting to SCORE a BALL in that GOAL. Minor incursions of the ROBOT into the opponent's LOW GOAL while attempting to POSSESS its own ALLIANCE'S BALL are generally not violations of this rule, unless that incursion also impedes the opponent's opportunity to SCORE.

Section 4.5: Material Utilization

The purpose of R18 is to give all Teams at each Event the same access to the same amount of unbagged FABRICATED ITEMS. A Team bringing more than 45 lbs, but leaving the items outside the venue, has access to more than 45 lbs and is violating this rule. The change below is being made to accomplish two objectives:

- 1. To make the intent of R18 explicitly clear.*
- 2. To make verification of R18 easier for Inspectors at each Event.*

R18

At an Event, Teams may have access to a static set of FABRICATED ITEMS that shall not exceed 45 lbs. This static set of items may only be brought into the Pits when the Team initially loads in at the Event. Items made at an Event do not count towards this weight limit.

For Teams attending 2-Day Events, these FABRICATED ITEMS may be used during the Robot Access Period and/or brought to the Event, but the total weight may not exceed 45 lbs. FABRICATED ITEMS constructed during the Robot Access Period and bagged with the ROBOT are exempt from this limit.

Items exempt from this limit are:

- A. the OPERATOR CONSOLE,
- B. BUMPERS, and
- C. any ROBOT battery assemblies (as described in [R5-A](#)).

Game Manual - Team UPDATE - 2014-03-04

Section:Game Manual

Section 2: The ARENA

Section 2.2.3: The GOALS

Note: In order to help minimize the chance of a BALL bouncing back out of a HIGH GOAL, we have modified the structure, as noted below in the update to Section 2.2.3.

Each ALLIANCE has two (2) HIGH GOALS located above their opponent's ALLIANCE WALL. The HIGH GOALS are 11 ft. 6 in. wide and 3ft. 1 in. tall with the bottom edge of the opening located 6 ft. 10 ³/₄ in. above the carpet. The outside edge of each HIGH GOAL is semi-circular with a radius of 1 ft. 6 ¹/₂ in. The HIGH GOALS are separated from each other by a 1 ft. wide divider.

Horizontal pipes are installed behind the bottom of each HIGH GOAL to prevent SCORED BALLS from dropping directly on DRIVERS. These pipes are covered in ¹/₄ in. clear polycarbonate sheet.

The perimeter of each HIGH GOAL is surrounded by Phillips Color Kinetics iColor Flex LMX LED light strings. The LEDs have several states that indicate GOAL status:

Section 3: The GAME

Section 3.1.2: MATCH Logistics

If the Head Ref determines that a BALL is becomes damaged or completely deflated, it will be replaced by a new replacement BALL of the same color will be delivered to one of the ALLIANCE'S HUMAN PLAYERS at the next safe opportunity. Once the new BALL enters the FIELD, the damaged BALL is invalidated, considered debris, and can no longer be used in MATCH play.

Section 3.2.6: ROBOT-ROBOT Interaction

Note: We have made a modification to G28 to indicate that the ROBOT committing the foul must have initiated the deliberate or damaging contact. We also clarified that the contact must be on or inside a vertical extension of the FRAME PERIMETER. The rule was already being interpreted this way with regards to the vertical extension, we just wanted to be clear.

G28

Initiating deliberate or damaging contact with an opponent ROBOT on or inside the vertical extension of

its FRAME PERIMETER is not allowed.

Violation: TECHNICAL FOUL

High speed accidental collisions may occur during the MATCH and are expected. ROBOTS extend elements outside of the FRAME PERIMETER at their own risk; no penalties will be assigned for contact between two such extended elements.

A ROBOT with an element outside its FRAME PERIMETER may be penalized under this rule if it appears they are using that element to purposefully contact another ROBOT inside its FRAME PERIMETER. Regardless of intent, a ROBOT with an element outside its FRAME PERIMETER that causes damage to another ROBOT inside of its FRAME PERIMETER will be penalized, unless the actions of the damaged ROBOT are the catalyst for the damage.

Section 3.2.7: Human Actions

G31

Strategies employing TEAM member HUMAN PLAYER actions to inhibit ROBOTS are not allowed.

Violation: TECHNICAL FOUL.

G32

Strategies employing TEAM member HUMAN PLAYER actions to deflect opponents' BALLS are not allowed.

Violation: TECHNICAL FOUL

G38

TEAM members HUMAN PLAYERS may not pass the BALL to a TEAM member HUMAN PLAYER in another HUMAN PLAYER AREA (passing the BALL within an ALLIANCE STATION or HUMAN PLAYER AREA is permitted).

Violation: FOUL

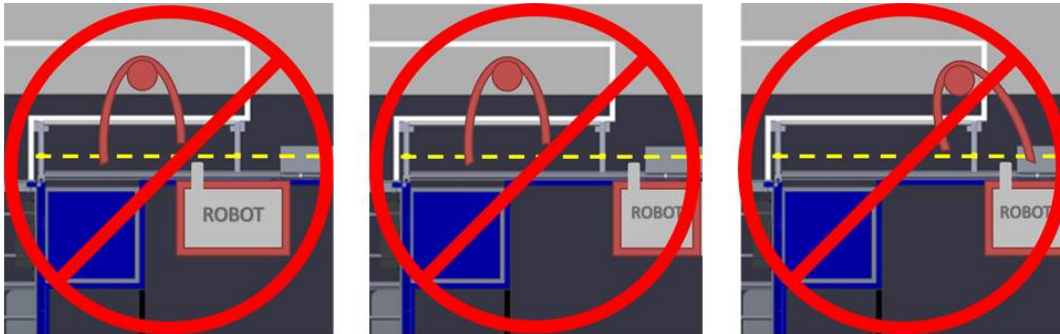
Note: We have made a modification to G40 as a compromise between a desire to mitigate the volume of G40 penalties incurred at Week 1 competitions and the fundamental objective of never allowing ROBOTS and Humans to occupy the same space at the same time during a MATCH. While this adjustment offers some reprieve for HUMAN PLAYERS who reach beyond the SAFETY ZONE during a MATCH, it maintains the SAFETY ZONE between the ROBOT and the HUMAN PLAYER when both are in the same area and stress that HUMAN PLAYERS prioritize safety and avoid the space unless necessary.

G40

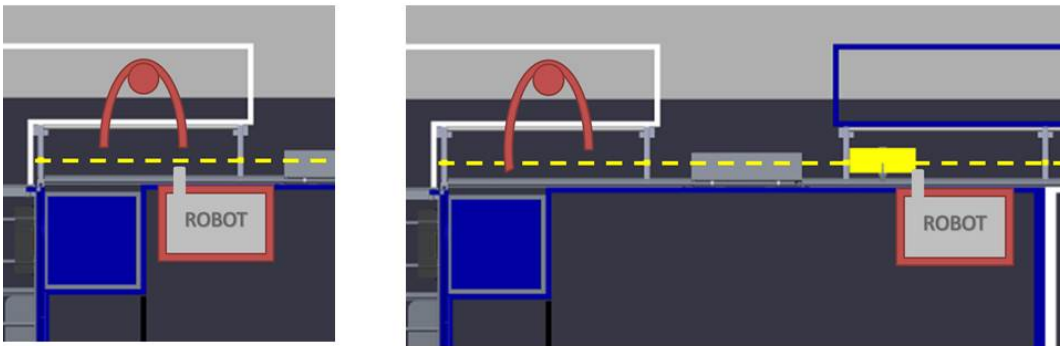
During the MATCH, TEAMS may not extend any body part

1. in to a space defined by the Human Player Barrier Brackets, the SAFETY ZONE, and the GUARDRAIL that is either occupied by a ROBOT or adjacent to such a space occupied by a ROBOT or,
2. beyond the GUARDRAIL at any time. into the SAFETY ZONE during the MATCH.

Violation: TECHNICAL FOUL



Not OK



Okay

Figure 3-7

Game Manual - Team UPDATE - 2014-02-25

Section:Game Manual

General Updates

As we move into Week 1 of the competition season we want to highlight some Control System resources you may find especially useful at your event. The documents located in the [Control System Troubleshooting section](#) of the 2014 Control System Documentation contain content on preparing your Control System for competition, troubleshooting issues, and getting help with your Control System at an event. Thanks to CSA Laura Rhodes from FRC Team 100 for contributing the source material for a number of these documents.

The [Inspection Checklist](#) has been updated to include reminders about safe transportation of the robot and a clarification to R87.

Good luck to all teams competing this week!

Section 4.6: BUMPER Rules

R21

BUMPERS must be constructed as follows (see [Figure 4-8](#)):

- D. be covered with a rugged, smooth cloth (~~two~~ **multiple** layers of cloth and seams are permitted if needed to accommodate [R27](#), provided the cross section of [Figure 4-8](#) is not significantly altered).

Game Manual - Team UPDATE - 2014-02-21

Section:Game Manual

General Updates

This will be the last scheduled Friday Team Update for the 2014 FRC Season. We will continue to post Team Updates on Tuesdays throughout the competition season.

Section 3.1.2: MATCH Logistics

If an ALLIANCE'S BALL becomes stuck in an ALLIANCE'S ROBOT, the ALLIANCE may signal to the Head Referee that the BALL is "dead" by holding the yellow "DEAD BALL" placard against the DRIVER STATION acrylic. At this point, the Head Referee will suspend the CYCLE (TRUSS and CATCH points are maintained, ASSIST accruals are voided) and re-illuminate the PEDESTAL, beginning another CYCLE for that ALLIANCE. If the ALLIANCE has not yet begun a CYCLE, the Head Ref will illuminate the PEDESTAL to begin the first CYCLE for that ALLIANCE once the dead BALL is the ALLIANCE'S only BALL on the FIELD that has not been SCORED. If the dead BALL is freed, that BALL must be removed from the FIELD through one of the ALLIANCE'S GOALS or by passing to an ALLIANCE HUMAN PLAYER ~~before the ALLIANCE can earn any more points.~~ The ALLIANCE may continue to earn POSSESSIONS, ASSISTS, TRUSS and CATCH points with the live BALL but will not be credited for a SCORED GOAL with the live BALL (though if the BALL otherwise meets the definition of SCORED it will be handled as SCORED by FIELD crew) until the dead BALL is removed from the FIELD. Consequently, the ALLIANCE will not begin a new CYCLE until the freed dead BALL is removed from the FIELD. Each ALLIANCE is allowed to indicate one (1) BALL as "dead" per MATCH.

Section 3.1.4: Scoring

The edit below is intended to allow non-team members, such as field reset volunteers, to clear a BALL that comes to rest on a FIELD structure after crossing through the opening of the ALLIANCE'S GOAL without invalidating the SCORE.

A BALL is considered SCORED in an ALLIANCE'S GOAL if

- A. a ROBOT causes one (1) of their ALLIANCE'S BALLS to cross completely and remain completely through the opening(s) of one (1) of their ALLIANCE'S GOALS without intervening human TEAM member contact,
- B. the ALLIANCE ROBOT last in contact with the BALL was entirely between the TRUSS and their ALLIANCE'S HIGH GOALS, and
- C. the BALL is not in contact with any ROBOT from that ALLIANCE.

Section 4.6: BUMPER Rules

R21

BUMPERS must be constructed as follows (see [Figure 4-8](#)):

- D. be covered with a rugged, smooth cloth (two layers of cloth **and seams are** is permitted if needed to accommodate [R27](#), provided the cross section of [Figure 4-8](#) is not significantly altered).

Section 4.10: Pneumatic System

The edit below is the direct result of a [question submitted to the Q&A](#) which asked for the meaning of “bypass” pressure. After looking in to it, we realized that it was not, in fact, a useful term in describing the specification for a legal regulator. The edit does not change the intent of the rule, but instead incorporates ubiquitous, standard terminology.

R77

The only pneumatic system items permitted on 2014 FRC ROBOTS include the items listed below.

- G. Pressure regulators with a maximum ~~bypass~~ **outlet** pressure of no more than 60 psi,

Game Manual - Team UPDATE - 2014-02-18

Section:Game Manual

General Updates

As we approach competition season, we wanted to remind Teams to prioritize safety when transporting their ROBOT on and off the FIELD, to include transporting the ROBOT in its lowest potential energy state and/or including lockouts to help mitigate unexpected release of stored energy. Inspectors will ensure ROBOTS comply with R8 and do not create unsafe conditions. If inspectors feel your ROBOT is unsafe to be transported while storing energy, they will work with you to add lockouts to help mitigate the unexpected release of stored energy. If you are unsure as to whether or not you need lockouts, it's best to be on the safe side and assume you do. Per T12, the Team should be able to safely release stored energy and be able to demonstrate this during Inspection. If the ROBOT creates an unsafe condition for people to be around it, on-FIELD troubleshooting prior to the MATCH will be limited to that which can be achieved safely.

At the Week 0 event in Merrimack, NH this past weekend, we noticed many of the ROBOTS slightly and accidentally violating G21. This raised two concerns for us. First, if this Violation were called consistently, the points in each MATCH earned via FOULS would rival the points earned via normal gameplay. Second, we believe that this Violation would not be enforced consistently throughout each event and across all of our events. Because of this, we are adjusting G21 and G40. We do not want ROBOTS intentionally reaching outside the FIELD for any reason. However, if it happens accidentally and marginally, no FOUL will be assigned.

Section 2.2.1: The FIELD

The HUMAN PLAYER BARRIER is a system that consists of horizontal pipes that are 1 ft. 8 in. above the floor and are supported by sheet metal struts that are integrated into the GUARDRAIL. The HUMAN PLAYER BARRIER extends 1 ft. 8 in. wider than the GUARDRAIL and creates a barricade between HUMAN PLAYERS and ROBOTS. The SAFETY ZONE is a 2 in. wide, infinitely tall region located 8 in. from the FIELD-side plane of the GUARDRAILS and is defined by yellow tape on the Human Player Barrier Brackets and the Human Player Barrier End Brackets.

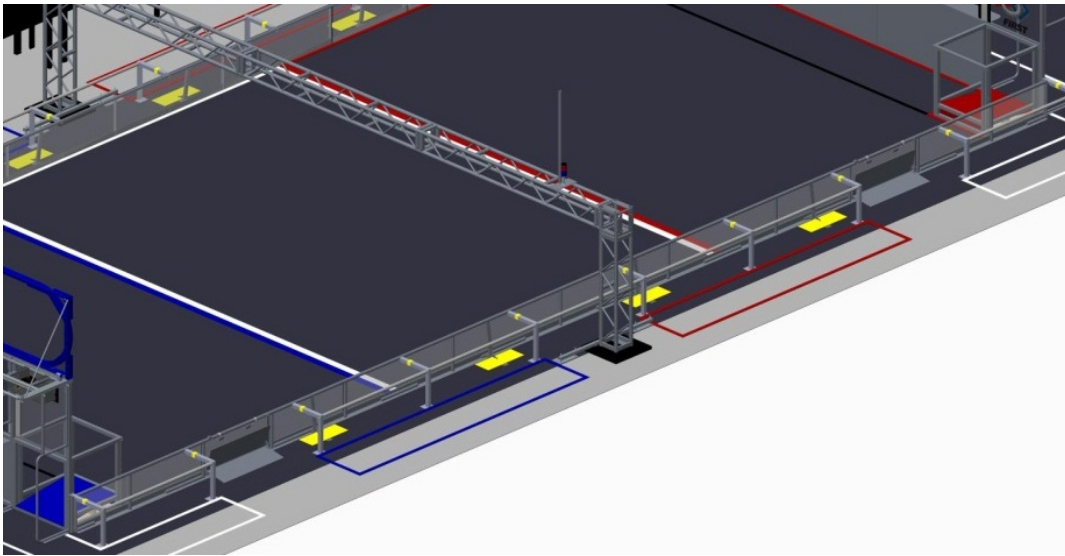


Figure 2-2a

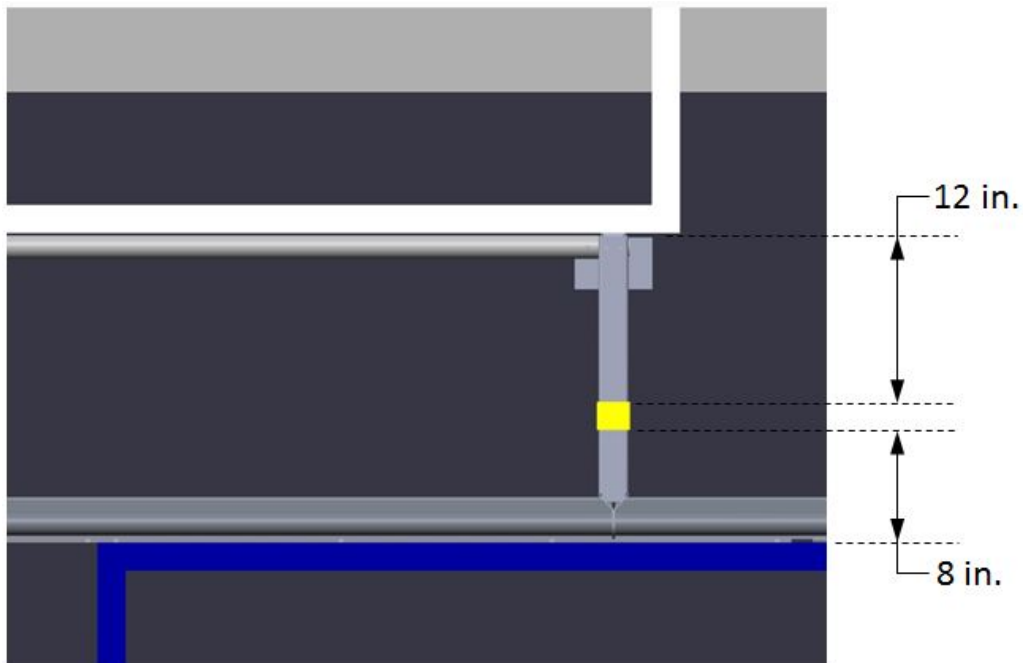


Figure 2-2b

Section 3.2.5 ROBOT Actions

G21

ROBOTS may not extend outside the FIELD.

Violation: **If intentional or if ROBOT extends into the SAFETY ZONE, FOUL.** If continuous or repeated violations, **TECHNICAL FOUL.** If contact with anything outside the FIELD **SAFETY ZONE, RED CARD** and the ROBOT will be **DISABLED.**

Section 3.2.7: Human Actions

TEAMS may not extend any body part into the SAFETY ZONE into the FIELD during the MATCH.
Violation: TECHNICAL FOUL.

Section 6.1: Glossary

SAFETY ZONE: a 2 in. wide, infinitely tall region located 8 in. from the FIELD-side plane of the GUARDRAILS and is defined by yellow tape on the Human Player Barrier Brackets and the Human Player Barrier End Brackets.

Game Manual - Team UPDATE - 2014-02-14

Section:Game Manual

2.2.8 The PLAYER STATIONS

Attached to the ALLIANCE WALL in each PLAYER STATION is an aluminum shelf to support the OPERATOR CONSOLE for the Team in that PLAYER STATION. The support shelf measures 5 ft. 9 in. wide x 1 ft. deep. There is a 4 ft. 6 in. long x 2 in. wide strip of hook-and-loop tape (“loop” side) along the center of the support shelf that may be used to secure the OPERATOR CONSOLE to the shelf. Each setup location includes a competition cable (to provide Ethernet connectivity) that attaches to the Ethernet Port of the OPERATOR CONSOLE. The cable provides communications with the ROBOT via the ARENA network. Each shelf will also have a “DEAD BALL” placard that Teams must use if they need to signal to a Referee that a BALL is stuck in one of the ALLIANCE’S ROBOTS, per Section 3.1.2: MATCH Logistics.

Section 3.1.2: MATCH Logistics

If an ALLIANCE’S BALL becomes stuck in an ALLIANCE’S ROBOT, the ALLIANCE may signal to the Head Referee that the BALL is “dead” by holding the yellow “DEAD BALL” placard against the DRIVER STATION acrylic (specifics regarding the signaling process are yet to be determined). At this point, the Head Referee will suspend the CYCLE (TRUSS and CATCH points are maintained, ASSIST accruals are voided) and re-illuminate the PEDESTAL, beginning another CYCLE for that ALLIANCE. If the ALLIANCE has not yet begun a CYCLE, the Head Ref will illuminate the PEDESTAL to begin the first CYCLE for that ALLIANCE once the dead BALL is the ALLIANCE’S only BALL on the FIELD that has not been SCORED. If the dead BALL is freed, that BALL must be removed from the FIELD through one of the ALLIANCE’S GOALS or by passing to an ALLIANCE HUMAN PLAYER before the ALLIANCE can earn any more points. Each ALLIANCE is allowed to indicate one (1) BALL as “dead” per MATCH.

Section 4.8: Power Distribution

R50

The only power regulating devices for actuators permitted on the ROBOT include:

- A. Jaguar Motor Controller (P/N: MDL-BDC, MDL-BDC24, and 217-3367),
- B. Victor 884 Motor Controller (P/N: VICTOR-884-12/12),
- C. Victor 888 Motor Controller (P/N: 217-2769),
- D. Talon Motor Controller (P/N: CTRE_Talon, CTRE_Talon_SR, and am-2195),
- E. VEX Motor Controller 29 (P/N: 276-2193) for controlling VEX 2-wire Motor 393 (P/N: 276-2177) only, and
- F. Spike H-Bridge Relay (P/N: 217-0220 and SPIKE-RELAY-H), and
- G. NI 9472 module connected to a Solenoid Breakout (P/N: FC14-097 or similar)

R51

Each power regulating device may control electrical loads per [Table 4-4](#). Unless otherwise noted, each power regulating device may control one and only one electrical load.

Table 4-4: Legal Power Regulating Device Use

Electrical Load	Jaguar, Victor, or Talon motor controller	Spike H-Bridge Relay	VEX Motor Controller 29	NI 9472 module w/Solenoid Breakout
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Game Manual - Team UPDATE - 2014-02-11

Section:Game Manual

General Updates

The original intent of the 45 lb FABRICATED ITEMS allowance granted to Teams via R18 was to allow Teams the opportunity to keep a part of their ROBOT out of the bag for further development. However, because of the definition of ROBOT and the term's use in R15, Teams were not allowed to keep a required ROBOT system (e.g. mobility, control, etc.) out of the bag. R15 and R18 have been updated to better capture the original intent.

[Question 219](#) in the Q&A asked if Teams could use soft material to secure the pool noodles to the wood during fabrication of the BUMPERS. Since that answer has been posted, we have received feedback from many Lead Robot Inspectors regarding their concern for consistent rulings during Inspections across multiple events. Because of this, we have edited R21-C, D, and E to allow fasteners to be used in this manner so long as the general cross section (Figure 4-8) of the BUMPER is not altered. The answer to Q219 has been updated.

Section 3.1.4: Scoring

A CYCLE is the series of events that recur regularly **in TELEOP**, and each CYCLE begins with an ALLIANCE member retrieving their BALL from their lit PEDESTAL and ends when the BALL is SCORED in a GOAL.

Section 4.3: Budget Constraints

R11

No individual, **non-KOP** item shall have a value that exceeds \$400 USD. The total cost of COMPONENTS purchased in bulk may exceed \$400 as long as the cost of an individual COMPONENT does not exceed \$400.

Section 4.4: Fabrication Schedule

R14

All The **ROBOT elements, with the exception of those withheld per R18** (including items intended for use during the competition in alternative configurations of the ROBOT, ~~excluding items permitted per R18~~), must be bagged or crated (as appropriate for your event), and out of Team hands by **the end of** Stop Build Day, February 18, 2014 (refer to the [FRC Administrative Manual, Section 5](#) for more details).

R15

Teams must stay “hands-off” their **bagged** ROBOT **elements** during the following time periods:

- A. from Stop Build Day until their first event,
- B. during the period(s) between their events, and
- C. outside of Pit hours while attending events.

Modifying parts at night offsite (e.g. pits have closed and you bring a MECHANISM back to the hotel to fix it) is a violation of R15-C.

Additional time is allowed as follows:

- D. There are no restrictions on when software may be developed.
- E. On days a team is not attending an event, they may continue development of any items permitted per [R18](#), including items listed as exempt from [R18](#), but must do so without interfacing with the ROBOT **bagged ROBOT elements**.
- F. Teams attending 2-day events may access their **bagged ROBOT elements** ROBOTS per the rules defined in the [Administrative Manual, Section 5.6. ROBOT Access Period - for Teams Attending 2-Day Events](#).
- G. ROBOTS may be exhibited per [Administrative Manual Section 5.4.3: Robot Displays](#).

Section 4.5: Material Utilization

R18

At an Event, Teams may have access to a static set of FABRICATED ITEMS that shall not exceed 45 lbs to repair and/or upgrade their ROBOT. Items made at an Event do not count towards this weight limit.

Section 4.6: BUMPER Rules

R21

BUMPERS must be constructed as follows (see [Figure 4-8](#)):

- C. use a stacked pair of approximately 2 ½ in. round, petal, or hex “pool noodles” (solid or hollow) as the BUMPER cushion material (see [Figure 4-8](#)). Cushion material may extend up to 2 ½ in. beyond the end of the plywood (see [Figure 4-5](#) and [Figure 4-9](#)). **To assist in applying the fabric covering, fasteners may be used to attach the pool noodles to the wood backing, so long as the cross section in Figure 4-8 is not significantly altered (e.g. tape compressing the pool noodles)**
- D. be covered with a rugged, smooth cloth (two layers of cloth is permitted if needed to **accommodate R27, provided the cross section in Figure 4-8 is not significantly altered**).
- E. Optionally, use aluminum angle ~~to clamp cloth~~, as shown in [Figure 4-8](#), or other fasteners (e.g. **staples, screws, etc.**) **to clamp cloth**.

Game Manual - Team UPDATE - 2014-02-07

Section:Game Manual

General Updates

The [2014 Inspection Bill of Materials \(BOM\) Template](#) has been posted on the [Game Manual homepage](#).

The [Shipping Crate Construction](#) document has been updated on the [Game Manual homepage](#).

Section 3.1.2: MATCH Logistics

If an ALLIANCE'S BALL becomes stuck in an ALLIANCE'S ROBOT, the ALLIANCE may signal to the Head Referee that the BALL is "dead" (specifics regarding the signaling process are yet to be determined). At this point, the Head Referee will suspend the CYCLE (TRUSS and CATCH points are maintained, ASSIST accruals are voided) and re-illuminate the PEDESTAL, beginning another CYCLE for that ALLIANCE. **If the ALLIANCE has not yet begun a CYCLE, the Head Ref will illuminate the PEDESTAL to begin the first CYCLE for the ALLIANCE.** If the dead BALL is freed, that BALL must be removed from the FIELD through one of the ALLIANCE'S GOALS or by passing to an ALLIANCE HUMAN PLAYER before the ALLIANCE can earn any more points. Each ALLIANCE is allowed to indicate one (1) BALL as "dead" per MATCH.

Section 3.2.3: General Rules

G12

An ALLIANCE may not POSSESS their opponent's BALLS. The following criteria define POSSESSION :

- A. "carrying" (moving while supporting BALLS in or on the ROBOT **or holding the BALL in or on the ROBOT**),
- B. "herding" (repeated pushing or bumping),
- C. "launching" (impelling BALLS to a desired location or direction via a MECHANISM in motion relative to the ROBOT), or
- D. "trapping" (overt isolation or holding one or more BALLS against a FIELD element or ROBOT in an attempt to shield them).

Violation: TECHNICAL FOUL per instance. If extended, another TECHNICAL FOUL. If strategic, RED CARD for the ALLIANCE.

Examples of BALL interaction that are not POSSESSION are

A. "bulldozing" (inadvertently coming in contact with BALLS that happen to be in the path of the ROBOT as it moves about the FIELD) and

B. "deflecting" (a single hit to or being hit by a BALL that bounces or rolls off the ROBOT **or a BALL slips through the grips of a ROBOT without arresting the BALL'S momentum**).

A BALL that becomes unintentionally lodged on a ROBOT will be considered POSSESSED by the ROBOT. It is important to design your ROBOT so that it is

impossible to inadvertently or intentionally POSSESS an opponent's BALL.

Section 3.2.6: ROBOT-ROBOT Interaction

G29

An ALLIANCE may not pin an opponent ROBOT for more than five (5) seconds. A ROBOT will be considered pinned until the ROBOTS have separated by at least six (6) ft. The pinning ROBOT(S) must then wait for at least three (3) seconds before attempting to pin the same ROBOT again. Pinning is ~~transitory~~ **transitive** through other objects.

Violation: *TECHNICAL FOUL*

Section 4.5: Material Utilization

R18

At an Event, Teams may have access to a static set of FABRICATED ITEMS that shall not exceed ~~30~~ **45** lbs to be used to repair and/or upgrade their ROBOT. Items made at an Event do not count towards this weight limit.

For Teams attending 2-Day Events, these FABRICATED ITEMS may be used during the Robot Access Period and/or brought to the Event, but the total weight may not exceed ~~30~~ **45** lbs. FABRICATED ITEMS constructed during the Robot Access Period and bagged with the ROBOT are exempt from this limit.

Items exempt from this limit are:

- A. the OPERATOR CONSOLE,
- B. BUMPERS, and
- C. any ROBOT battery assemblies (as described in [R5-A](#)).

Section 4.6: BUMPER Rules

R21-D

BUMPERS must be constructed as follows (see [Figure 4-8](#)):...

- D. be covered with a rugged, smooth cloth.

Silk or bedding are not considered rugged materials. 1000D Cordura is recommended. **Tape (e.g. gaffer's tape) matching the BUMPER color is allowed to patch small holes on a temporary basis.**

Section 4.8: Power Distribution

R31

The only legal source of electrical energy for the ROBOT during the competition, the ROBOT battery, is one of the following approved 12VDC non-spillable lead acid batteries:

- A. EnerSys (P/N: NP18-12)
- B. MK Battery (P/N: ES17-12)
- C. Battery Mart (P/N: SLA-12V18)
- D. Sigma (P/N: SP12-18)
- E. Universal Battery (P/N: UB12180)
- F. Power Patrol (P/N: SLA1116)
- G. Werker Battery (P/N: WKA12-18NB)
- H. Power Sonic (P/N: PS-12180 NB)
- I. Yuasa (P/N: NBP18-12B)

Game Manual - Team UPDATE - 2014-02-04

Section:Game Manual

General Updates

[The 2014 Inspection Checklist](#) has been posted on the [Game Manual homepage](#).

Section 2.2.5: The TRUSS

The TRUSS is manufactured from 2 in. diameter x $\frac{1}{8}$ in. wall and 1 in. diameter x $\frac{1}{8}$ in. wall 6082-T6

Each TRUSS POLE has a $1\frac{2}{3}$ in. diameter and is 4 ft. tall.

Section 4.6: BUMPERS

R22

There is no explicit requirement that BUMPERS be perfectly parallel to the floor, however the requirement that BUMPERS be constructed per Figure 4.28, the vertical cross-section, does implicitly mean that a BUMPER should not overtly deviate from this orientation.

Section 4.8: Power Distribution

R37

R37 is checked by observing a $>10k\Omega$ resistance between either the (+) or (-) post within the APP connector that is attached to the PD Board and any point on the ROBOT.

Game Manual - Team UPDATE - 2014-01-31

Section:Game Manual

General Updates

Our vendor thought the intent with the HIGH GOALS was to have the outside corners powder coated red or blue to match the rest of the HIGH GOAL. This is contrary to the instructions we provided the vendor, but we feel the schedule risk to correct this issue is not worth the potential benefit. We have updated the images throughout the manual to reflect the current situation. We sincerely apologize for any inconvenience teams experience because of this change.

Game Manual - Team UPDATE - 2014-01-28

Section:Game Manual

Section 4.8: Power Distribution

R31

The only legal source of electrical energy for the ROBOT during the competition, the ROBOT battery, is one of the following approved 12VDC non-spillable lead acid batteries:

- A. EnerSys (P/N: NP18-12)
- B. MK Battery (P/N: ES17-12)
- C. Battery Mart (P/N: SLA-12V18)
- D. Sigma (P/N: SP12-18)
- E. Universal Battery (P/N: UB12180)
- F. Power Patrol (P/N: SLA1116)
- G. Werker Battery (P/N: WKA12-18NB)
- H. Power Sonic (P/N: PS-12180 NB)
- I. Yuasa (P/N: NB18-12B)

Game Manual - Team UPDATE - 2014-01-24

Section:Game Manual

Section 3.2.2: Pre-MATCH

G4

When placed on the FIELD, each ROBOT must be:

1. in compliance with all ROBOT rules (i.e. have passed Inspection),
2. confined to its STARTING CONFIGURATION,
3. **positioned such that the only contact between the ROBOT and the carpet is** ~~only in contact with the carpet~~ in their GOALIE ZONE
or
positioned such that the only contact between the ROBOT and the carpet is ~~only in contact with the carpet~~ in the white ZONE **and with the ROBOT** between the TRUSS and their GOALS, and
4. fully supported by the floor.

TEAMS positioning ROBOTS in the white ZONE have precedence over opponents placing ROBOTS in the GOALIE ZONE.

Violation: If fix is a quick remedy: the MATCH won't start until all requirements are met. If it is not a quick remedy: the ROBOT will be DISABLED and must be re-Inspected.

Game Manual - Team UPDATE - 2014-01-21

Section:Game Manual

General Updates

With the change to G4 below, [Question 65](#) has been updated to match.

Q. Q. G4-D entirely within their GOALIE ZONE. Building a standard kitbot in a wide configuration will cause part of the robot to be outside the GOALIE ZONE when the bumpers are attached. Is it necessary to build a narrower robot to ensure the bumpers and robot fit entirely within the GOALIE ZONE?

A. Per G4-C, ROBOTS starting in their GOALIE ZONE **may only be in contact with the carpet in the GOALIE ZONE.** ~~must be contained entirely within the GOALIE ZONE.~~

[Drawing FE-00037](#) has been updated to include more detail on the relative locations of the VISION TARGETS.

Section 3.2.2: Pre-MATCH

G4

When placed on the FIELD, each ROBOT must be:

- A. in compliance with all ROBOT rules (i.e. have passed Inspection),
- B. confined to its STARTING CONFIGURATION,
- C. ~~entirely within~~ **only in contact with the carpet in** their GOALIE ZONE, or ~~entirely within~~ **only in contact with the carpet in** the white ZONE and between the TRUSS and their GOALS, and
- D. fully supported by the floor.

TEAMS positioning ROBOTS in the white ZONE have precedence over opponents placing ROBOTS in the GOALIE ZONE.

Violation: If fix is a quick remedy: the MATCH won't start until all requirements are met. If it is not a quick remedy: the ROBOT will be DISABLED and must be re-Inspected.

Section 3.2.3: General Rules

G12

An ALLIANCE may not POSSESS their opponent's BALLS. The following criteria define POSSESSION :

- A. "carrying" (moving while supporting BALLS in or on the ROBOT),
- B. "herding" (repeated pushing or bumping),
- C. "launching" (impelling BALLS to a desired location or direction via a MECHANISM in motion relative to the ROBOT), ~~and~~ **or**
- D. "trapping" (overt isolation or holding one or more BALLS against a FIELD element or ROBOT in an attempt to shield them).

Violation: TECHNICAL FOUL per instance. If extended, another TECHNICAL FOUL. If strategic, RED CARD for the ALLIANCE.

Section 4.6: BUMPER Rules

R21

BUMPERS must be constructed as follows (see [Figure 4-8](#)):

A. be backed by $\frac{3}{4}$ in. (nominal) thick by 5 in. ($\pm \frac{1}{2}$ in) tall plywood or solid, robust wood. Small clearance pockets and/or access holes in the plywood backing are permitted, as long as they do not significantly affect the structural integrity of the BUMPER.

Section 4.8: Power Distribution

R51

Each power regulating device may control electrical loads per [Table 4-4](#). Unless otherwise noted, each power regulating device may control one and only one electrical load.

Table 4-4: Legal Power Regulating Device Use

Electrical Load	Jaguar, Victor, or Talon motor controller	Spike H-Bridge Relay	VEX Motor Controller 29	Solenoid Breakout
M3-RS390-12 M3-RS395-12 M5-RS545-12 M5-RS555-12 M7-RS775-12 262100-3030 262100-3040 ARA motors AE235100-0610 am-2235 am-2161 am-2194	Yes Up to 2 per controller	Yes	No	No
CIM am-0912 M5-RS540-12 M5-RS550-12 M5-RS550-12-B M7-RS775-18 217-3351 217-3371 276-2177	Yes	No	No	No
	Yes Up to 2 per controller	Yes	Yes	No
Compressor	No	Yes	No	No
Pneumatic Solenoid Valves	No	Yes*	No	Yes

Electric Solenoids	No	Yes*	No	Yes (via 12VDC only)
CUSTOM CIRCUITS	Yes	Yes*	No	Yes

*Multiple low-load, pneumatic solenoid valves, electric solenoids or CUSTOM CIRCUITS may be connected to a single relay module. This would allow one (1) relay module to drive multiple pneumatic actions or multiple CUSTOM CIRCUITS. No other electrical load can be connected to a relay module used in this manner.

Game Manual - Team UPDATE - 2014-01-17

Section:Game Manual

Section 2.2.4: VISION TARGETS

The retro-reflective material on the dynamic VISION TARGET is nominally 3¾ in. from the FIELD-side surface of the ALLIANCE WALL polycarbonate sheet above the LOW GOAL.

Section 3.2.3: General Rules

G12

An ALLIANCE may not POSSESS their opponent's BALLS. The following criteria define POSSESSION:

1. "carrying" (moving while supporting BALLS in or on the ROBOT),
2. "herding" (repeated pushing or bumping),
3. "launching" (impelling BALLS to a desired location or direction via a MECHANISM in motion relative to the ROBOT),
4. "trapping" (overt isolation or holding one or more BALLS against a FIELD element or ROBOT in an attempt to shield them).

Violation: TECHNICAL FOUL per instance. If extended, another TECHNICAL FOUL. If strategic, RED CARD for the ALLIANCE.

Examples of BALL interaction that are not POSSESSION are

A. "bulldozing" (inadvertently coming in contact with BALLS that happen to be in the path of the ROBOT as it moves about the FIELD) and

B. "deflecting" (a single hit to or being hit by a BALL that bounces or rolls off the ROBOT).

A BALL that becomes unintentionally lodged on a ROBOT will be considered POSSESSED by the ROBOT. It is important to design your ROBOT so that it is impossible to inadvertently or intentionally POSSESS an opponent's BALL.

Section 4.6: BUMPER Rules

R26

In Team Update 2014-01-14:

BUMPERS must be supported by the structure/frame of the ROBOT (see [Figure 4-10](#)). To be considered supported, a minimum of ½ in. at each end of the BUMPER must be backed by the FRAME PERIMETER. Additionally, any gap between the backing material and the frame

- A. ~~the gap between the backing material and the frame must not be greater than ¼ in. deep, and~~ or
- B. ~~the BUMPER must be backed by the FRAME PERIMETER at least every 8 in wide.~~

In Manual:

BUMPERS must be supported by the structure/frame of the ROBOT (see [Figure 4-10](#)). To be considered supported, a minimum of ½ in. at each end of the BUMPER must be backed by the FRAME PERIMETER. Additionally, any gap between the backing material and the frame

- A. must not be greater than ¼ in. deep, and (change to “or” per last TU)
- B. not more than 8 in. wide.

Section 5.1: Overview

In the event where order placement of ROBOTS matters to either or both ALLIANCES, the ALLIANCE must notify the Head Referee during setup for that MATCH. Upon notification, the Head Referee will require ALLIANCES to place their ROBOTS per the following protocol:

Qualification MATCHES

1. Blue GOALIE (if in use)
2. Red GOALIE (if in use)
3. Blue ROBOTS in the White ZONE
4. Red ROBOTS in the White ZONE

Elimination MATCHES

1. Lower seed GOALIE (if in use)
2. Higher seed GOALIE (if in use)
3. Lower seed ROBOTS in the White ZONE
4. Higher seed ROBOTS in the White ZONE

Section 6: Glossary

POSSESS: (for a ROBOT) to carry (move while supporting BALLS in or on the ROBOT), herd (repeated pushing or bumping), launch (impel BALLS to a desired location or direction via a MECHANISM in motion relative to the ROBOT), or trap (overt isolation or holding one or more BALLS against a FIELD element or ROBOT in an attempt to shield them) a BALL.

Game Manual - Team UPDATE - 2014-01-14

Section:Game Manual

General Updates

Windows 7 Activation Update:

If you've received an error while trying to activate Windows on your Classmate, please refer to the procedure for activating the Windows 7 OS, [2014 Windows 7 Activation Procedure_Rev0](#), which has been posted at <http://www.usfirst.org/roboticsprograms/frc/technical-resources>.

In order to activate the copy of Windows 7, teams must download [this tool](#) and run the application.

LRI Training

On Saturday, January 11, we hosted more than 50 Lead Robot Inspectors at FIRST HQ as part of LRI Training. Many of the changes in this Team Update are a result of their feedback and are an attempt to clarify the true intent behind each rule. We thank them for their time spent as volunteers and for their feedback as we strive for continuous improvement of the Manual.

Section 3: The Game

Section 3.1: Game Details

Section 3.1.4: Scoring

The change made by [Team Update 2014-01-07](#) to [Section 3.1.4: Scoring](#), part A created unintended consequences for exactly when a BALL would be considered SCORED in a GOAL. The intent was to make sure that a BALL that "bounced out" of a GOAL did not count as SCORED. We believe the following change better captures that intent.

A BALL is considered SCORED in an ALLIANCE'S GOAL if

- A. a ROBOT causes one (1) of their ALLIANCE'S BALLS to cross completely **and remain completely** through the opening(s) of one (1) of their ALLIANCE'S GOALS ~~and into the opposing ALLIANCE STATION~~ without intervening human contact,
- B. the ALLIANCE ROBOT last in contact with the BALL was entirely between the TRUSS and their ALLIANCE'S HIGH GOALS, and
- C. the BALL is not in contact with any ROBOT from that ALLIANCE.

...

A CATCH occurs when a BALL SCORED over the TRUSS by a ROBOT'S ALLIANCE partner is POSSESSED by that ROBOT before contacting the carpet, **the ROBOT which SCORED the TRUSS**, or HUMAN PLAYER.

Section 3.2: Game Rules

Section 3.2.3: General Rules

G10

The following actions are prohibited with regards to interaction with FIELD elements (~~items A-D exclude~~ excluding BALLS):

- A. grabbing,
- B. grasping
- C. grappling
- D. attaching to,
- E. damaging,
- F. becoming entangled

Violation: FOUL. If the Head Referee determines that further damage is likely to occur, DISABLED. Corrective action (such as eliminating sharp edges, removing the damaging mechanism, and/or re-Inspection) may be required before the ROBOT will be allowed to compete in subsequent MATCHES.

Section 4: The Robot

Section 4.2: Safety & Damage Prevention

R9

Protrusions from the ROBOT and exposed surfaces on the ROBOT shall not pose hazards to the ARENA elements (including the ~~GAME PIECES~~ BALLS) or people.

Section 4.4: Fabrication Schedule

R13

ROBOT elements created before Kickoff are not permitted. ROBOT elements, including software, that are designed before Kickoff are not permitted. ~~unless they or their source files are publicly available prior to Kickoff.~~

Exceptions include the following:

- A. BUMPERS,
- B. OPERATOR CONSOLE,
- C. battery assemblies per R5-A, and
- D. software and designs with source files publicly available prior to Kickoff.

R14

The ROBOT (including items intended for use during the competition in alternative configurations of the ROBOT, excluding items permitted per [R17](#) [R18](#)) must be bagged or crated (as appropriate for your event), and out of Team hands by Stop Build Day, February 18, 2014 (refer to the [FRC Administrative Manual, Section 5](#) for more details).

Section: 4.6: BUMPER Rules

R26

BUMPERS must be supported by the structure/frame of the ROBOT (see [Figure 4-10](#)). To be considered supported, a minimum of ½ in. at each end of the BUMPER must be backed by the FRAME PERIMETER. Additionally, any gap between the backing material and the frame

- A. ~~the gap between the backing material and the frame must not be greater than ¼ in. deep, and~~
or
- B. ~~the BUMPER must be backed by the FRAME PERIMETER at least every 8 in wide.~~

R27

Each ROBOT must be able to display red or blue BUMPERS to match their ALLIANCE color, as assigned in the MATCH schedule distributed at the event (reference [Section 5.1.1: MATCH Schedules](#)). Markings visible when installed on the ROBOT, other than those explicitly required per R28, are prohibited.

Section 4.8: Power Distribution

R35

The one ROBOT battery, Anderson Power Products (or APP) Connectors (p/n SB50), the one main 120-amp (120A) circuit breaker (Cooper Bussman P/N: CB185-120), and the one Power Distribution (PD) Board shall be connected as shown in [Figure 4-11](#).

R51

Each power regulating device may control electrical loads per [Table 4-4](#). Unless otherwise noted, each power regulating device may control one and only one electrical load.

Table 4-4: Legal Power Regulating Device Use

Electrical Load	Jaguar, Victor, or Talon motor controller	Spike H-Bridge Relay	VEX Motor Controller 29	Solenoid Breakout
M3-RS390-12 M3-RS395-12 M5-RS545-12 M5-RS555-12 M7-RS775-12 262100-3030 262100-3040 ARA motors AE235100-0610 am-2235 am-2161 am-2194	Yes Up to 2 per controller	Yes	No	No

R86

If the regulator is kept off-board the ROBOT with the compressor, then only low-pressure (60 psi or less) “working” air can be stored on the ROBOT. The “working” pressure gauge must be installed on-board

the ROBOT at all times ([Figure 4-17](#)).

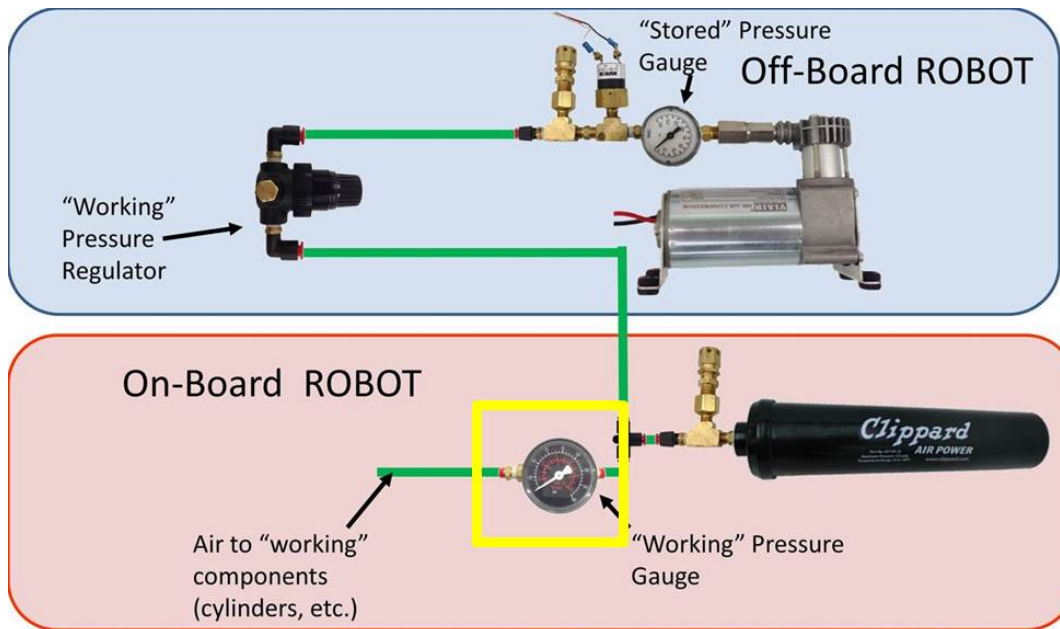


Figure 4-17: **(Updated to match rule)** Off-Board Compressor, Regulator, and Gauge with Additional On-Board Gauge

Section 5: The Tournament

Section 5.5: Tournament Rules

Section 5.5.2: Eligibility and Inspection Rules

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 FTA, LRI or Head Referee may determine at any time that the ROBOT is unsafe, per [Section 3.2.1: Safety](#), and may prohibit further participation in Practice MATCHES until the condition is corrected and the ROBOT passes Inspection.

ROBOTS without BUMPERS will be considered unsafe.

ADDED BLUE BOX

If a ROBOT cannot report for a MATCH, the Lead Queuer should be informed and at least one (1) member of the TEAM should report to the ARENA for the MATCH to avoid receiving a RED CARD, with the exception of a Team that has not passed Inspection, per Rule [T6](#).

T12

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, **confirmation of safe release of stored energy up to and including actuation of the mechanism,** etc.).

Section 6: The Glossary

CATCH: the event when a BALL SCORED over the TRUSS by a ROBOT'S ALLIANCE partner is POSSESSED by that ROBOT before contacting the carpet, **the ROBOT which SCORED the TRUSS,** or a HUMAN PLAYER.

SCORE: to accrue points for an ALLIANCE **as described in [Section 3.1.4: Scoring](#).**

Game Manual - Team UPDATE - 2014-01-10

Section: The VISION TARGETS

There are four (4) VISION TARGETS on each end of the FIELD: two (2) dynamic VISION TARGETS and two (2) static VISION TARGETS. There is one (1) dynamic VISION TARGET located above each LOW GOAL. Each dynamic VISION TARGET is located behind the polycarbonate panel on the ALLIANCE WALL. The dynamic VISION TARGET is horizontal and begins 5 ft. 8 in. above the FIELD carpet, is centered over the LOW GOAL, and consists of a panel with one (1) 4 in. wide, 1 ft. 11 ½ in. long strip of retro-reflective material (3M 8830 Silver Marking Film) adhered horizontally along the length of the panel with a 2 in. black ABS plastic border surrounding the retro-reflective material. The dynamic VISION TARGET is actuated to show the retro-reflective material when its corresponding HIGH and LOW GOAL are HOT. It will rotate to hide the retro-reflective material (pointing it upwards) when its corresponding HIGH and LOW GOAL are not HOT. Both of these conditions are shown in [Figure 2-9](#).

Before the MATCH starts and throughout TELEOP, both dynamic VISION TARGETS are positioned such that the reflective material faces the FIELD.

The static VISION TARGET is mounted such that half is behind the polycarbonate sheet above the LOW GOAL and half is behind the acrylic panel of the PLAYER STATION. It uses vertical reflectors which are located above the inside edge of the LOW GOAL. The vertical reflector consists of a 4 in. wide, 2 ft. 8 in. tall stripe of retro-reflective material bordered by 2 in. wide black gaffers tape on the left and right sides. The vertical reflectors begin 3 ft. 1 ½ in. above the FIELD carpet.

Game Manual - Team UPDATE - 2014-01-10

Section: MATCH Logistics

Although an ALLIANCE may start a MATCH with up to three (3) BALLS, the PEDESTAL will only be illuminated when the last BALL that started the MATCH is SCORED, effectively reducing the number of BALLS in play per ALLIANCE to one (1).

BALLS that are ejected from gameplay during a MATCH will be delivered to the closest HUMAN PLAYER of that BALL'S ALLIANCE by event staff at the next safe opportunity. This includes BALLS that go in GOALS but don't meet the criteria to be considered SCORED.

If a BALL becomes damaged or completely deflated, it will be replaced by a new BALL of the same color at the next safe opportunity. Once the new BALL enters the FIELD, the damaged BALL is invalidated, considered debris, and can no longer be used in MATCH play.

If an ALLIANCE'S BALL becomes stuck in an ALLIANCE'S ROBOT, the ALLIANCE may signal to the Head Referee that the BALL is "dead" (specifics regarding the signaling process are yet to be determined). At this point, the Head Referee will suspend the CYCLE (TRUSS and CATCH points are maintained, ASSIST accruals are voided) and re-illuminate the PEDESTAL, beginning another CYCLE for that ALLIANCE. If the dead BALL is freed, that BALL must be removed from the FIELD through one of the ALLIANCE'S GOALS or by passing to an ALLIANCE HUMAN PLAYER before the ALLIANCE can earn any more points. Each ALLIANCE is allowed to indicate one (1) BALL as "dead" per MATCH.

If an ALLIANCE'S BALL becomes stuck in an opposing ALLIANCE'S ROBOT, the Head Referee will signal an extended infraction of G12 (the assumption is that the ALLIANCE has already been penalized for the initial G12 infraction). At this point, the Head Referee will suspend the current CYCLE and re-illuminate the PEDESTAL, beginning another CYCLE for that ALLIANCE. If the stuck BALL is freed, that ball will be considered FIELD debris.

If a BALL becomes stuck on the TRUSS, the Head Referee will shake the TRUSS to free the BALL. In this situation, the ALLIANCE will not earn TRUSS points. While shaking the TRUSS, the Head Referee will take care not to impact gameplay of the other ALLIANCE.

Game Manual - Team UPDATE - 2014-01-10

Section:G12

An ALLIANCE may not POSSESS their opponent's BALLS. The following criteria define POSSESSION :

- A. "carrying" (moving while supporting BALLS in or on the ROBOT),
- B. "herding" (repeated pushing or bumping),
- C. "launching" (impelling BALLS to a desired location or direction), and
- D. "trapping" (overt isolation or holding one or more BALLS against a FIELD element or ROBOT in an attempt to shield them).

Violation: TECHNICAL FOUL per instance. If extended, another TECHNICAL FOUL. If strategic, RED CARD for the ALLIANCE.

Game Manual - Team UPDATE - 2014-01-10

Section:R29

The only motors and actuators permitted on 2014 FRC ROBOTS include the following:

Table 4-1: Legal Motors

Motor Name	Part Numbers Available	Max Qty Allowed
BaneBots Motors	M7-RS775-18 / RS775PH-6221 M7-RS775-12 / RS775WC-8514 M5-RS555-12 / RS555PH-4136F M5-RS550-12 / RS550VC-7527 M5-RS550-12-B / RS550VC-7527L M5-RS545-12 / RS545PH-5125F M5-RS540-12 / RS540BA-5040 M3-RS395-12 / RS395PH-3328 M3-RS390-12	4

Game Manual - Team UPDATE - 2014-01-07

Section: MATCH Logistics

We've received questions about how a MATCH will proceed if a BALL gets stuck on or in a ROBOT or on the TRUSS. We are in the process of refining the process and are incorporating feedback from Chief volunteers to identify the cleanest solution.

Game Manual - Team UPDATE - 2014-01-07

Section:Scoring

For BALLS with which the ALLIANCE started the MATCH, points are awarded when they are SCORED in GOALS.

For BALLS retrieved from an ALLIANCE'S PEDASTAL, points are awarded to ALLIANCES per the details below. Final scores will be assessed five (5) seconds after the ARENA timer displays zero (0) or when all elements come to rest, whichever event happens first.

Points are awarded once per CYCLE for BALLS SCORED by ROBOTS in the GOALS, BALLS SCORED by ROBOTS over the TRUSS, and for each ROBOT CATCH and as each objective is achieved. Additional points are credited to an ALLIANCE upon each GOAL based on the number of ASSISTS earned by the ALLIANCE for that CYCLE.

A BALL is considered SCORED in an ALLIANCE'S GOAL if

- A. a ROBOT causes one (1) of their ALLIANCE'S BALLS to cross completely through the opening(s) of one (1) of their ALLIANCE'S GOALS and into the opposing ALLIANCE STATION without intervening human contact,
- B. the ALLIANCE ROBOT last in contact with the BALL was entirely between the TRUSS and their ALLIANCE'S HIGH GOALS, and
- C. the BALL is not in contact with any ROBOT from that ALLIANCE.

Game Manual - Team UPDATE - 2014-01-07

Section:G4

When placed on the FIELD, each ROBOT must be:

- A. in compliance with all ROBOT rules (i.e. have passed Inspection),
- B. confined to its STARTING CONFIGURATION,
- C. entirely within their GOALIE ZONE, or
entirely within the white ZONE and between the TRUSS and their GOALS, and
- D. fully supported by the floor.

TEAMS positioning ROBOTS in the white ZONE have precedence over opponents placing ROBOTS in the GOALIE ZONE.

Violation: If fix is a quick remedy: the MATCH won't start until all requirements are met. If it is not a quick remedy: the ROBOT will be DISABLED and must be re-Inspected.

Game Manual - Team UPDATE - 2014-01-07

Section:G26-1

ROBOTS may not break the planes of the openings of the opponent's LOW GOALS.

Violation: FOUL. If extended, strategic, or repeated, TECHNICAL FOUL.

Game Manual - Team UPDATE - 2014-01-07

Section:Game Manual

Many of the USB Image Restoration Keys that shipped with the Green Totes have been reported as damaged. If you are in this situation, you can follow the instructions [here](#) to fix your USB Image Restoration Key. We want to remind Rookie Teams that the Classmate that shipped in the Green Tote has a Windows 7 image on it, so the Team is not required to image the computer.

The [Kickoff Kit Checklist for the Black Tote](#) has been updated. The errors that were corrected are:

1. The Ice Cube Cooler Kit quantity has been changed to 1.
2. The Panel Signal Device has been added as a “loose” item.