

Team Update 02

GENERAL

Playing Field Assets

Team Elements

- Rev A of [TE-23000-Setof3Grids-Dwg](#) corrects an error in item 3 quantity.
- The following documents are updated to remedy cut list typos and omissions:
 - [TE-23000-Setof3Grids-ReadMe](#)
 - [TE-23001-GRID-ReadMe](#)
 - [TE-23002-EndConeRamp-ReadMe](#)
 - [TE-23003-MidConeRamp-ReadMe](#)
 - [TE-23004-CubeShelf-ReadMe](#)

GAME MANUAL

Section 6.1.1 GAME PIECES

- B. each ALLIANCE may stage 4 GAME PIECES of their choice on the STAGING MARKS, 1 per any of the STAGING MARKS between their COMMUNITY and the CENTER LINE, such that each GAME PIECE covers or surrounds the center of its STAGING MARK (as viewed from above) as comparable to staging shown in Figure 6-1,

Section 6.4 GRID Scoring

The edit to Table 6-1 is to ensure that the corner of the BARRIER that extends into the adjacent HYBRID NODE (highlighted below in green) is inconsequential in the assessment of GAME PIECES scored in that HYBRID NODE.

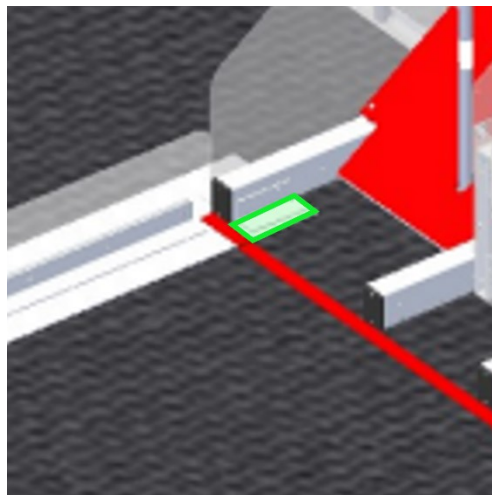


Table 6-1 GAME PIECE Scoring Criteria

ROW	GAME PIECE	Scoring Criteria
Bottom	CONE or CUBE	Touching FIELD carpet and/or BARRIER in only 1 HYBRID NODE and fully contained in GRIDS.
Middle or Top	CONE	The top of the CONE NODE is contained within the volume defined by the conical surface of the CONE
Middle or Top	CUBE	partially or completely (regardless of inflation state) supported by a CUBE NODE.

Section 7.1 ROBOT Restrictions

G109 Don't extend in multiple directions. ROBOTS may not extend beyond their FRAME PERIMETER in more than one direction (i.e. over 1 side of the ROBOT) at a time. The extension may not reach outside the projection of that side of the FRAME PERIMETER. For the purposes of this rule, a round or circular section of FRAME PERIMETER is considered to have an infinite number of sides. Exceptions to this rule are:

- A. MOMENTARY and inconsequential extensions in multiple directions
- B. A ROBOT fully contained within its LOADING ZONE or COMMUNITY.

Violation: FOUL. TECH FOUL if extending in multiple directions scores a GAME PIECE. If extending in multiple directions results in the ROBOT blocking all access to a FIELD ELEMENT, RED CARD

MOMENTARY and inconsequential actions include a wire or cable tie swinging out of the FRAME PERIMETER, including while an extension is deployed.

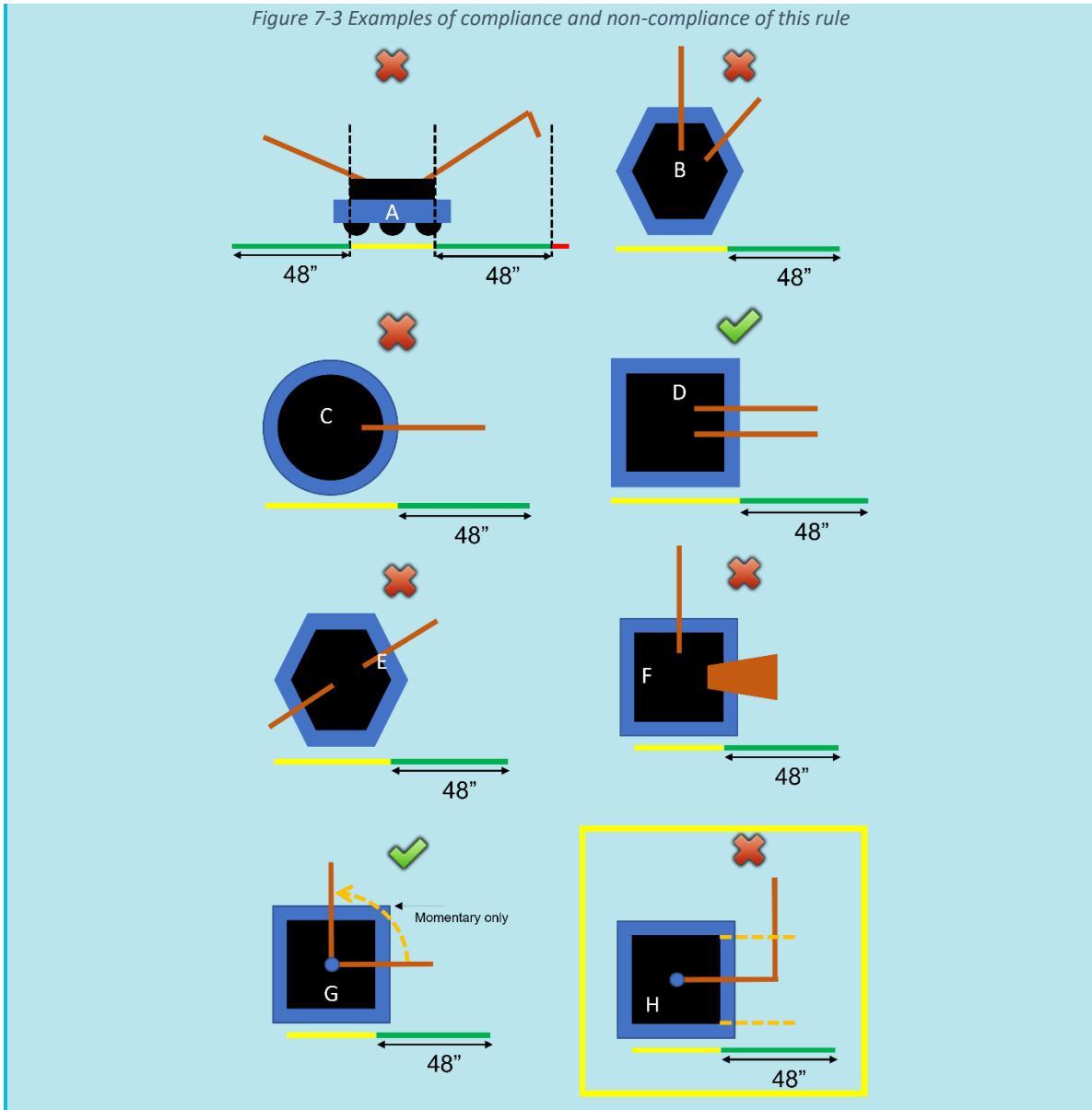
Examples of compliance and non-compliance of this rule are shown in Figure .

Yellow bars represent the limits of the FRAME PERIMETER and are drawn in the same orientation of the ROBOT'S FRAME PERIMETER. Green bars represent a measured extension from the FRAME PERIMETER that does not exceed the limit defined in this rule. Red bars represent a measured extension from the FRAME PERIMETER that exceeds the limit in this rule.

All following examples are legal in ROBOT'S LOADING ZONE and COMMUNITY.

- ROBOT A violates this rule for extending in more than one direction
- ROBOT B violates this rule for extending in more than one direction
- ROBOT C violates this rule for extending beyond an infinite number of sides and therefore any extension over an arc extends over multiple sides
- ROBOT D does not violate this rule
- ROBOT E violates this rule for extending in more than one direction
- ROBOT F violates this rule for extending in more than one direction
- ROBOT G does not violate this rule as long as the extension does not exceed the definition of MOMENTARY when positioned over the BUMPER corner.
- ROBOT H violates this rule for reaching outside the projection of the FRAME PERIMETER side.

Figure 7-3 Examples of compliance and non-compliance of this rule



Section 8.5 During the MATCH

H502 *No wandering. DRIVE TEAMS may not contact anything outside the area in which they started the MATCH (i.e. the ALLIANCE AREA, the SUBSTATION AREA, or the designated TECHNICIAN space). Exceptions are granted for a HUMAN PLAYER whose feet are partially outside the SUBSTATION AREA (but not in the opponent ALLIANCE AREA), in cases concerning safety, and for actions that are inadvertent, MOMENTARY, and inconsequential.

Violation: FOUL.

Section 9 ROBOT Construction Rules

A VENDOR is a legitimate business source for COTS items that satisfies all the following criteria:

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- C. **should maintain sufficient stock or production capability so they are** ~~must be able to ship any general (i.e., non-FIRST unique) product within 5 business days of receiving a valid purchase request. It is recognized that certain unusual circumstances (such as a global supply chain disruption and/or 1,000 FIRST teams all ordering the same part at once from the same VENDOR) may cause atypical delays in shipping due to backorders for even the largest VENDORS. Such delays due to higher-than-normal order rates are excused. This criterion may not apply to custom-built items from a source that is both a VENDOR and a fabricator.~~
- ~~D. should maintain sufficient stock or production capability to fill teams' orders within a reasonable period during the season (less than 1 week). This criterion may not apply to custom-built items from a source that is both a VENDOR and a fabricator.~~

For example, a VENDOR may sell flexible belting that the team wishes to procure to use as treads on their drive system. The VENDOR cuts the belting to a custom length from standard shelf stock that is typically available, welds it into a loop to make a tread, and ships it to a team. The fabrication of the tread takes the VENDOR 2 weeks. This would be considered a FABRICATED ITEM, and the 2-week ship time is acceptable. Alternately, the team may decide to fabricate the treads themselves. To satisfy this criterion, the VENDOR would just have to ship a length of belting from shelf stock (i.e. a COTS item) to the team within 5 business days and leave the welding of the cuts to the team.

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Section 9.5 Motors & Actuators

R501 *Allowable motors. The only motors and actuators permitted include the following (in any quantity):

Table 9-1 Motor allowances

Motor Name	Part Numbers Available
REV Robotics NEO Brushless	REV-21-1650 (v1.0 or v1.1) am-5258 am-4258 am-4258a

Section 10 Inspection & Eligibility Rules

An [Inspection Checklist](#) **(not yet published)** is available to help teams self-inspect their ROBOT before their event. Teams are strongly encouraged to self-inspect prior to their event.

Section 11.6.2 MATCH Assignment

The edit below is not a change to how the match schedule algorithm works, it's just an edit to fix an error in the description of the how the algorithm works.

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

1. maximize time between each MATCH played for all teams
2. minimize the number of times a team plays opposite any team minimize the number of times a team is allied with any team
3. minimize the number of times a team is allied with any team minimize the number of times a team plays opposite any team
4. minimize the use of SURROGATES (teams randomly assigned by the FMS to play an extra Qualification MATCH)
5. provide even distribution of MATCHES played on blue and red ALLIANCE
6. provide even distribution of MATCHES played in each DRIVER STATION number

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

Section 11.8.1.6 Regional Participation

District teams do not neither earn points for their actions at any Regionals they may attend, nor are eligible for any FIRST Championship qualifying judged awards benefits at those events that Regional (awards, Wild Cards, etc.). However, if a District team does earn a slot at the FIRST Championship while attending a Regional event is on the winning ALLIANCE, that slot does count as part of the total Championship allocation the District is receiving for the season a Wild Card is awarded to the next qualifying team. If they are on the finalist ALLIANCE and would be awarded a Wild Card, they are skipped.

Section 11.8.2 District Championship Eligibility

Table 11-9 2023 District Championship Capacities

District Championship	Capacity
FIRST North Carolina State Championship	36 40

Section 12 Glossary

Term	Definition
LOADING ZONE	an 8 ft. 3 in. (~252 cm) wide by 11 ft. ¼ in. (~336 cm) to 22 ft. ¼ in. (~671 cm) deep infinitely tall volume formed by the DOUBLE SUBSTATION, the plane defined by the BARRIER plastic, the guardrail, and ALLIANCE colored tape. The LOADING ZONE includes the tape.