



Team Update 02

General Notes

- A [Rule & Penalty Crib Sheet](#) has been posted to the “Game and Season Manual” section of the [2017 Game and Season Materials site](#). This spreadsheet is intended to be a modifiable, filterable resource for quick reference of rules and violations. While it will be updated as Team Updates are published, any discrepancy between it and the [2017 Game and Season Manual](#) is unintended, and the content of the manual takes precedent.

Section 4.3 Scoring

Table 4-1: FIRST STEAMWORKS rewards

Action	Criteria	MATCH Points		Ranking Points
		AUTO	TELEOP	
AUTO mobility	For each ROBOT that breaks the BASE LINE vertical plane with their BUMPER by T=0	5		
	For every three (3) FUEL counted in the Low Efficiency GOAL by T=0	1	-	
	For every one (1) FUEL counted in the High Efficiency GOAL by T=0	+ 1 kPa		-
Pressure accumulation	For every nine (9) FUEL counted in the Low Efficiency GOAL by T=0		1	
	For every three (3) FUEL counted in the High Efficiency GOAL by T=0		+ 1 kPa	
	If ALLIANCE meets or exceeds a threshold pressure of 40 kPa	-	20 (Playoffs only)	1 (Quals only)

Section 7.1 Before the MATCH

G01-F. in possession of supporting not more than 10 FUEL and 1 GEAR (as described in Section 4.2 MATCH Setup).

Section 7.7 Human Action Rules

H15. Seriously, GEARS stay installed. A pre-populated GEAR may not be removed from its AXLE.

Section 9 Inspection & Eligibility

I04. ROPES have to be inspected. A Team must submit any ROPE they intend to use in a MATCH for Inspection. A ROPE must meet the following criteria (see Figure 9-2 for letter references):

- A. have a maximum width (W) of 1 in. (nominal) (e.g. exclusive of any knot widths)



- B. be designed/configured to be at least 5 ft. 3 in. (~160 cm) long (measured end to end) measured from the side of the ROPE'S retaining feature (per I04-E) that abuts the DAVIT fingers (L), to the farthest point on the ROPE from this feature.
- C. be designed/configured to not exceed a length of 8 ft. (~244 cm) (measured end to end) measured from the side of the ROPE'S retaining feature (per I04-E) that abuts the DAVIT fingers (L), to the farthest point on the ROPE from this feature.
- D. consist entirely of flexible, non-metallic fibers twisted, tied, woven, or braided together except for the last 4 in. (~10 cm) of each any cut end (E) which may be whipped, (with material that is flexible and non-metallic) or fused, covered in heat shrink or tape, or dipped in a coating material only to prevent fraying.

Flexible means that if the ROPE is held at any point, it should not extend more than 12 in. (~30 cm) above the point where it is held. ROPES are meant to be pulled, not pushed.

Figure 9-1 has been edited to remove the section of ROPE with tape on the end to be in compliance with edits to I04-D made in this Team Update.

Figure 9-1 ROPE examples



- E. be configured such that it engages securely with the FIELD.

To interface with the field a ROPE must have a retaining feature (e.g. a knot) greater than 1 in. (~25.4 mm) in diameter to interface with the DAVITS (RF).

- F. if knotted, the top knot must be at least 29 in. (~74 cm) below the retaining knot/feature (K)
- G. if knotted or looped, the total diameter does not exceed 10 in. (~25 cm) (D)

If the ROPE has a loose loop such that, uncompressed it's 12 in. (~30 cm) in diameter, but it can be easily compressed by hand to less than 10 in., that ROPE has met the requirement of part I04-G.



- H. be designed/configured to not exceed a length of 5 in. (~12 cm) measured from the side of the ROPE'S retaining feature (per I04-E) that abuts the DAVIT fingers, to the closest end on the ROPE from this feature (S).

The intent of I04 is to allow Teams the convenience of bringing their own ROPE for reliability and predictability purposes, as well as accommodate some modifications to ease the challenge associated with accessing the TOUCHPAD (e.g. tying knots).

The modifications allowed are limited, however. For example, consider the limitation of the purpose of whipping or fusing to prevent fraying in I04-D and that *FIRST* Robotics Community members are innovative and may discover a way to fuse the end of the ROPE in a way that can be leveraged for competitive advantage. This "superfusion" extends the fusing's purpose beyond only preventing fraying.

We acknowledge that this could result in temptation to implement the superfusion method anyway and hope an Inspector doesn't notice, or that you will be able to convince them the superfusion method really is "only to prevent fraying." Please don't do this. It will likely lead to a bad experience both for you and the volunteer who really does want you to participate in the event, but with a 100% legal ROBOT.

Figure 9-2 ROPE anatomy

