



Team Update 04

General Notes

- The *Early Pit Setup* section of the [Rules and Expectations for FIRST Robotics Competition Page](#) has been updated to include the following additions:

E32-1. Only five team members (one of which must be an adult) may be in the pit area, and this must be for the purposes of pit set up only.

E32-2. Once pit set-up is complete, or the early Pit Set-up time the evening before pits open to all has ended, team members must immediately leave the pit area

If an event has designated Early Pit Setup times both the evening before and the morning before pits open to all, a team may use both periods to set up its pits, but, per E32-2, must leave once pit set up is complete. Teams can be expected to be asked to leave by event personnel if it is noted that their pit set up is complete and they have not yet left the pit area.

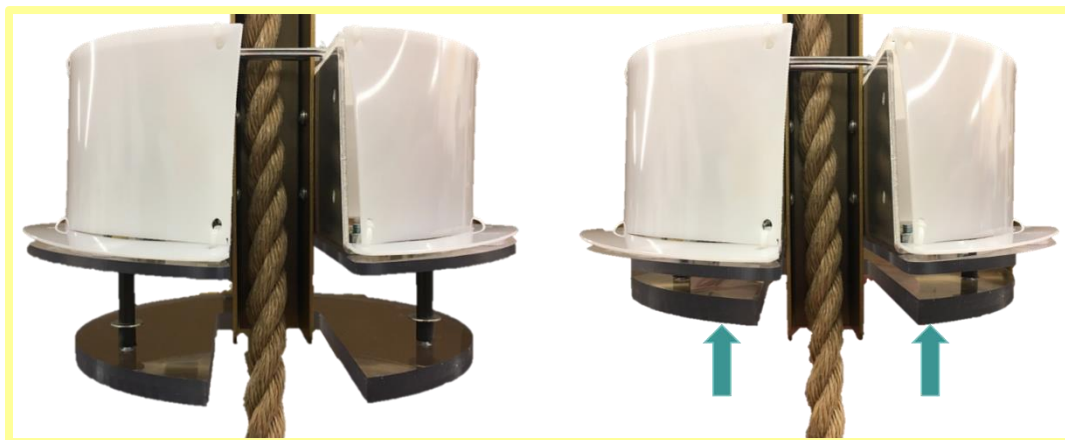
Section 3

- GE-17560 has been added to the [Field Components drawing package](#).

Section 3.9 TOUCHPAD

Figure 3-20 shows the two extreme states of the TOUCHPAD plate. The image on the left shows the TOUCHPAD unactuated and the figure on the right shows one example of an actuated TOUCHPAD (with the plate pressed all the way up). The DAVIT'S steel channel does not move with the TOUCHPAD plate.

Figure 3-20 Unactuated TOUCHPAD (left) and fully displaced TOUCHPAD plate (right)



Section 8 ROBOT Rules

R35. Each power regulating device may control electrical loads per Table 8-2Table . Unless otherwise noted, each power regulating device shall control one and only one electrical load.



Table 8-2: Power regulating device allotments

Electrical Load	Motor Controller	Relay Module	Pneumatics Controller
CIM AndyMark 9015 WCP RS775 Pro VEX BAG/MiniCIM Banebots	Yes	No	No
Automotive Window/Door/Windshield Wiper/Seat/Throttle Motors AndyMark PG Snow-Blower Motor NeverRest	Yes (up to 2 per controller)	Yes	No
Compressor	No	Yes	Yes
Pneumatic Solenoid Valves	No	Yes*	Yes (1 per channel)
Electric Solenoids	No	Yes*	Yes (1 per channel)
CUSTOM CIRCUITS ^a	Yes	Yes*	Yes (1 per channel)

* 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.

^a A CUSTOM CIRCUIT is any electrical COMPONENT of the ROBOT other than motors, pneumatic solenoids, roboRIO, PDP, PCM, VRM, RSL, 120A breaker, motor controllers, relay modules, wireless bridge, or batteries.

R44. The one (1) ROBOT battery, a single pair of Anderson Power Products (or APP) 2-pole SB type connectors, the one (1) main 120-amp (120A) circuit breaker (Cooper Bussman P/N: CB185-120), and the one (1) CTR Electronics Power Distribution Panel (PDP, P/N: am-2856, 217-4244, 14-806880) shall be connected with 6 AWG (7 SWG or 16 mm²) wire or larger, with no additional devices or modifications, as shown in Figure 8-8.

R82-C

Norgren 16-004-011, 16-004-003 or McMaster-Carr 48435K714 recommended.

Section 10.4.3 Qualification Ranking (and ultimately Section 11 Glossary)

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

Section 10.5.3 Playoff MATCH Bracket

ALLIANCE Leads are assigned to PLAYER STATION 2, the first picks are assigned to the PLAYER STATIONS 4 closer to the BOILER, and second picks are assigned to the PLAYER STATIONS 3 closer



to the opponent's **LOADING STATION**. If a **BACKUP TEAM** is in play, they will be assigned to the **PLAYER STATION** that was assigned to the **DRIVE TEAM** they're replacing.

For Quarterfinal **MATCHES**, the higher seeded **ALLIANCE** is assigned to the Red **ALLIANCE**. Beyond the Quarterfinal **MATCHES**, the **ALLIANCE** on the top of each **MATCH** in Figure 10-2 are assigned to the Red **ALLIANCE**, regardless of whether they are the higher seeded **ALLIANCE** in that particular **MATCH**.

Section 10.12.3.7 *FIRST* Championship Eligibility for District Teams

Districts determine the number of Dean's List, Chairman's, Rookie All Star, and Engineering Inspiration Awards to present at their Championship, within a range established by *FIRST* and shown in Table 10-11.

Table 10-11: District slot allocations for *FIRST* Championship

District	FIRST Championship Houston Slots	FIRST Championship St. Louis Normalized Slots	Chairman's Award			Dean's List Award			Engineering Inspiration Award			Rookie All-Star Award		
			Max Ratio	Min Ratio	District Selection	Max Ratio	Min Ratio	District Selection	Max	Min	District Selection	Max	Min	District Selection
FIRST Championship St. Louis														
FIRST Chesapeake	23	23	1	3	2	3	4	4	1	2	2	1	2	1
FIRST in Michigan	82	82	5	9	5	9	14	14	1	2	1	1	2	2
Indiana <i>FIRST</i>	10	40	1	1	1	2	2	2	1	2	1	1	2	1
Mid-Atlantic Robotics	22	22	1	2	2	2	4	4	1	2	2	1	2	1
New England	37	37	2	4	4	4	6	5	1	2	2	1	2	2
Ontario	29	29	2	3	3	3	5	5	1	2	1	1	2	1
FIRST Championship Houston														
FIRST Israel	16	13	1	1	1	2	2	2	1	2	2	1	2	1
FIRST North Carolina	15	12	1	1	1	2	2	2	1	2	2	1	2	1
Pacific Northwest	39	32	2	4	3	4	5	5	1	2	2	1	2	2
Peachtree	18	15	1	2	1	2	3	3	1	2	2	1	2	1

All Districts, regardless of Championship Slot allocation, may award one (1) or two (2) Engineering Inspiration and Rookie All-Star Awards.

Chairman's Award and Dean's List Award maximums and minimums are determined by ratios applied to a given District's Championship Slot allocations. However, Districts assigned to Houston have relatively larger Championship slot allocations for a given team count compared to Districts assigned to St. Louis, and we did not want these larger allocations to skew award allocations. So, for the purposes of award allocations only, Championship slots for Houston Districts were 'normalized', as shown in the table, reducing the slots allocated to what they would have been if both Championship geographies had the same total number of *FIRST* Robotics Competition teams. This 'normalized' slot allocation was then used to determine award minimums and maximums. As noted, these normalized slot values are used only for award allocations. The Houston-assigned Districts still retain the full Championship Slots Allocated (the larger number) shown in the table.