Team Updates
Team UPDATE - 2012-01-10 17:14:44
Team UPDATE - 2012-01-10 17:14:44
GAME

General Announcements

Replacement Parts Request Deadline

There have been conflicting due dates published for all Replacement Parts Requests , our apologies for the discrepancy. Because of the inconsistency, replacement part requests will be accepted via TIMS until the lengthier deadline, Friday, January 13, 2013 at noon.

DB37 Rework

Please note that many, if not all, of the DB37 cables shipped in the 2012 Kickoff Kits were assembled incorrectly. We have posted more information about the issue as well as instructions to fix the cables here .

E09 and E11 Image Notes

We’ve received feedback from some Kickoff locations that teams may not have received the appropriate USB key for their kit Classmates. These keys contain the updated software license key for Windows 7, as well as other helpful software for the 2012 FRC season. To determine if you have the right key, here’s the gist:

If you have the wrong key, please let us know using the Replacement Parts Request Process.

The E11 Classmates that were shipped to rookie teams do not have an Operating System loaded on them, so rookie teams *must* image them per the instructions in the Getting Started with the 2012 Control System document in order to be able to use the netbook.

Meanwhile, veteran teams do not *have* to reimage their machines for the 2012 season. Instead, they can follow the instructions posted in the Classmate Imaging Supplement to update the machine so it's compatible with the 2012 FRC hardware and software.

We've received some feedback that not all E09 USB keys are allowing the user to boot from the drive, for which we sincerely apologize for the inconvenience. We are working to understand the root cause of this issue. Meanwhile, for those teams experiencing this issue, please use the alternate procedure in the Classmate Imaging Supplement .

Per *The Game Manual* , teams are not required to use a Classmate as their Driver Station computer. To configure your machine properly for use with the FRC Field, please follow the updated instructions posted on the 2012 FRC Robot Driver Station Information page.

The Kit of Parts

The ***Kickoff Kit Checklist, Rev A*** , has been edited to make the following corrections:

- AndyMark motor PN has changed from am-9012 to am-0912.
- AndyMark gearmotor PN has changed from am-9014 to am-0914.
- FisherPrice motor PN has changed from 00968-2719 to 00968-9013.
- The sub-container for the following parts was changed from Software Pack to Small Parts Bag.
  - STOP Sticker
  - FRC Sticker
  - LabVIEW for FRC
  - WinRiver Software Bundle

The Arena
The Bridges

Robots traverse the center of the Court by crossing over either one of three Bridges or the 4 in. tall by 6 in. wide, smooth steel Barriers running between them. Each Alliance has one dedicated Bridge for their use at end of their Alley. An additional white Coopertition Bridge is located at the center of the Court. Each Bridge is 48 in. wide, 88 in. long (outside dimensions), and sits with the top platform 12 in. high off the ground when level. Each Bridge is mounted on a double-hinge that allows the Bridge to tip towards either end of Court. The top surface of each bridge includes an array of 15 small holes, details of which are included in the official field drawings.

A Bridge will count as Balanced if it is within 5° of horizontal and any Robots touching it are fully supported by it .

General Rules
[G10]

Robots may not grab, grasp, grapple, or attach to any Arena structure. Robots may not push or react against the top of the Fender. (Robots may push or react against any element of the Arena that is not protected by another rule.)
Violation: Foul

Scoring
[G40]

When the final score is assessed per [G37] , Robots completely supported by a Balanced Alliance Bridge, per Section 2.2.5 , earn points as follows:

# of Robots	Qualification	Elimination
1	10	10
2	20	20
3	20	40

As the level of competition at the *FIRST* Championship is typically very different than during the competition season, the Game Design Committee will possibly alter the value of Balancing at the *FIRST* Championship within the range of 5 to 15 points per Robot.

Control, Command & Signals System
[R61]

Each Jaguar must be controlled with signal inputs sourced from the cRIO and passed via either a connected PWM cable or a CAN-bus connection.

1. The Jaguar must receive signals via either a PWM cable -OR- a CAN-bus connection. Both may not be used simultaneously.
2. PWM configuration: If the Jaguar speed controller is controlled via PWM communications, the PWM port on the Jaguar speed controller must be connected directly to a PWM port on the Digital Sidecar with a PWM cable. No other devices may be connected to these PWM ports. No other devices may be connected to any other ports on the Jaguar speed controller with the exception of connection to the coast/brake port.
3. CAN-bus configuration: If the Jaguar speed controller is controlled via CAN-bus communications, then each Jaguar speed controller must be connected to either the cRIO or another CAN-bus device with a CAN-bus cable.
4. If the CAN-bus configuration is used, the firmware on all Jaguar speed controllers must be updated to at least Version ~~94~~ 99 of the official *FIRST* firmware.

Pneumatic System
[R71]

The only pneumatic system items permitted on 2012 FRC Robots include the items listed below.

1. Items ~~listed in the 2012 KOP Checklist or available via FIRST Choice~~ available in the 2012 Kit of Parts .
2. Pneumatic pressure vent plug valves functionally equivalent to those provided in the KOP.

Parker valves PV609-2 or MV709-2 are recommended.

3. Solenoid valves with a maximum â in. NPT port diameter, and a maximum Cv of 0.32 (if non-KOP valves are used, the team will be required to provide part documentation validating that the valves meet these constraints).
4. Solenoid valves that are rated for a maximum working pressure that is less than 125 psi rating mandated above are permitted, however if employed, an additional pressure relief valve must be added to the low pressure side of the main regulator. The additional relief valve must be set to a lower pressure than the maximum pressure rating for the solenoid valve.
5. Additional pneumatic tubing, with a maximum 0.160 in inside diameter, functionally equivalent to that provided in the KOP, with the pressure rating clearly factory-printed on the exterior of the tubing or with supplier documentation showing the pressure rating.
6. Pressure transducers, pressure gauges, and connecting fittings,
7. Pressure regulators with a maximum bypass pressure of no more than 60 psi,
8. Pneumatic cylinders,
9. Pneumatic storage tanks, and
10. Compressors compliant with Rule [R73] .

For the purposes of the FRC, the following devices are not considered pneumatic devices and are not subject to pneumatic rules (though they must satisfy all other rules):

- a device that creates a vacuum
- closed-loop COTS pneumatic (gas) shocks
- air-filled (pneumatic) wheels

General Robot Design
[R01-2]

Created [R01-2] from [R01-1] original blue box.

The Robot must have a Frame Perimeter that is comprised of fixed, non-articulated structural elements of the Robot. The Frame Perimeter of a Robot is defined by the outer-most set of exterior vertices on the Robot that are within the Bumper Zone, which is between 2 and 10 in. from the floor. Minor protrusions no greater than ¼ in. such as bolt heads, fastener ends, and rivets are not considered part of the Frame Perimeter.

To determine the Frame Perimeter, wrap a piece of string around the Robot at the level described in [R02] . The string describes this polygon.

Note: to permit a simplified definition of the Frame Perimeter and encourage a tight, robust connection between the Bumpers and the Frame Perimeter, minor protrusions such as bolt heads, fastener ends, rivets, etc are excluded from the determination of the Frame Perimeter.

[R01-1]

Removed Blue Box to create [R01-2]

Motors & Actuators
[R48]

Added Rule #

The only motors and actuators permitted on 2012 FRC Robots include:

1. up to 4 CIM motors (part #FR801-001, M4-R0062-12, AM802-001A, 217-200 or PMR25R-45F-1003),
2. up to 4, in any combination, of the BaneBots motors provided in the KOP (acceptable part numbers are M7-RS775-12, M7-RS775-18, M5-RS550-12, M5-RS550-12-B, and M3-RS395-12),
3. up to 2 window motors (acceptable part #s are 262100-3030 and 262100-3040),
4. up to 2 FisherPrice motors (acceptable part #s are 00968- ~~2719~~ -9013 , 00801-0673, and 00968-9015),
5. up to 2 AndyMark motors (acceptable part # is ~~am-9012~~ am-0912),
6. up to 2 AndyMark gearmotors (acceptable part # is ~~am-9014~~ am-0914),
7. up to 2 Denso throttle control motors (acceptable part # AE2351000)
8. up to 2 VEX motors (acceptable part # 276-2177)
9. up to 2 window lift, seat, windshield wiper or door motors obtained through either the *FIRST*

-Automotive Recyclers Association partnership or from a prior years' KOP.

Note: It will be up to the teams to show that the motors used on the Robot are legal by providing paperwork showing the motor's original use, i.e. if it's called a "seat motor" on the ARA receipt, it is a seat motor.

10. electrical solenoid actuators, no greater than 1 in. stroke and rated at no greater than 10 watts continuous duty at 12 V ,
11. drive motors or fans that are part of a speed controller or COTS computing device
12. an unlimited number of COTS servos with a maximum power rating of 4W each at 6V

Servo Max Power Rating = (Stall Torque) X (No Load Speed)

[R50]

All electrical loads (motors, actuators, compressors, electric solenoids) must be supplied by an approved power regulating device (speed controller, relay module, or Digital Sidecar PWM port) that is controlled by the cRIO on the Robot.

1. Each CIM motor and Fisher-Price motor must be connected to one and only one approved speed controller. These motors must not be connected to relay modules.
2. Servos must be directly connected to the PWM ports on the Digital Sidecar. They must not be connected to speed controllers or relay modules.
3. If used, the compressor must be connected to one and only one approved relay module.
4. Each other electrical load (motor or actuator) must be supplied by one and only one approved speed controller, or one and only one relay module.
5. Electric solenoids may alternatively be supplied by a Solenoid Breakout Board connected to the NI 9472 cRIO module , which is powered by 12V .