BYU Combat Robotics Safety Inspection Checklist

***This checklist is not all-encompassing. Event organizers ensure that each robot is built and operated in accordance with SPARC Robot Construction Specifications (v1.5), and also at the Event Organizer's discretion.*

Initial Checks:

- ☐ Robot needs to have a profile on robotcombatevents.com (with a picture of their bot).
- ☐ Weigh the robot for compliance with weight limits (for weight bonuses, see 5.1).
- ☐ Plastic Antweight: Verify approved plastic materials for weapon, chassis, and armor. Limited to PET, PETG, ABS, PLA, and PLA+. (No Overture Super PLA+ or Polymaker Polymax Tough PLA) (see 16.3.1)
- ☐ Battery should be protected, battery type is LiPo, and <48V. (See 8)
- ☐ Assess special cases (autonomous, pneumatics, hydraulics, spinners, springs/flywheels). (See 7, 9, 10, 12, and 13)
- ☐ Beetles must have a weapon tip speed under 250mph. Calculate using LiPo cell count (using 4.2V/ea), motor kv, pulley ratio, and weapon circumference. Teams may be asked to show CAD files or online orders to verify specs.

Checks to be done inside Test Box or Arena:

- ☐ Verify weapon locks and driving blocks. Weapon lock should stop weapon movement and driving block should prevent a runaway robot. Both should be clearly visible. Weapon lock must be brightly colored so the referee can easily spot (see 3.4.4-6)
- ☐ Does the robot move? (see 5)
- ☐ Confirm radio system compliance (has two frequencies or spread spectrum capability). (See 3.4 and 6)
    - ☐ Check that **drive failsafe** is operable (robot stops moving if the transmitter is powered off)
    - ☐ For robots with active weapons (not spikes or a wedge, something that moves), check that **weapon failsafe** is operable. Weapon must spin down in under 60s.
- ☐ Robot has a power LED indicator, power switch, and safe manual disconnection time (under 15s). Driver ***cannot*** put hand in weapon's path to engage/disengage weapon lock or power switch (See 8.6 and 3.4)
- ☐ Ensure no use of forbidden weapons/materials. (See 14)
    - ☐ This includes weapons that require significant cleanup, or in some way damages the arena to require repair for further matches. Ensure that the weapons do not damage the test box so that it requires repair (see 14.2).

Have the team check this box:

- [ ] We agree to use our locking devices **at all times** when not in **the arena or test box** and to follow **basic safety practices** while at the competition, including following our approved load-in/load-out procedure and **always using fireproof bags** when charging LiPo batteries

Load-In Procedure:

1. Turn transmitter on. Hands off & place it on the floor, table, or on top of the arena. Weapon throttle should be completely powered off
2. Place robot in arena
3. Power on the robot
4. Remove weapon lock
5. Do not touch the transmitter or move the bot while arena is still open

Load-Out Procedure:

1. If possible, drive your robot to the door of the arena before it is opened
2. Place transmitter aside like before. Leave it on, hands off
3. Open arena door once both teams are ready
4. Engage weapon lock
5. Power off robot
6. Power off transmitter

*These are the typical load-in/load-out procedures. At safety inspection, event organizers may change the order of the procedure for individual teams based on robot design