



City of Aurora, Colorado

PUNKIN CHUNKIN

Punkin Chunkin Colorado 2020

**September 26 &
27**

**Arapahoe Park Racetrack
26000 East Quincy Ave.
Aurora, CO**

**Event Coordinator:
Tim Erickson
tiericks@auroragov.org**

2020 Chunker Manual

PUNKIN CHUNKIN COLORADO is an annual event produced by the city of Aurora where teams from around Colorado and the nation compete to see how far they can launch a pumpkin. The fun-for-all-ages event also includes a fall festival with live music, unique entertainment, food trucks, beverage tents, a pumpkin patch, face painting and a wide variety of other family-friendly activities. This year's event will also include a corvette car show.

2020 EVENT SCHEDULE OVERVIEW - Tentative

Saturday, September 19 – Thursday, September 24

- Machine early load-in, inspections and test firing

Friday, September 25

- Machine load-in, inspections, test firing and pumpkin weighing, 8 am – 3:30 pm
 - o ALL machines MUST be onsite and set up by noon at the latest to be able to inspect and test fire.
 - o Last test firing, 3:30 pm
- Chunker Safety Meeting, 3:30 – 4 pm

Saturday, September 26

- Team check in, pit security management in place, 8 – 9 am
- Chunker Breakfast, 7:00am-9am
- Team Safety Meeting, 9 – 9:30 am
- Open Pit, 10-10:50 am
- Opening Ceremony, 10:50 – 11 am
- Competition Round, #1, 11 – 12:30 pm
- Lunch available, 11:30 – 1 pm
- Competition Round #2, 1 – 2:30 pm
- Open Pit, 2:30 – 3:30 pm
- Competition Round #3, 3:30 – 5 pm

Sunday, September 27

- Team check-in, pit security management in place, 9 – 10 am
- Team Safety Meeting, 9:30 – 9:45 a.m.
- Open Pit, 10-10:30
- Competition Round #4, 10:40 – 12:10 pm
- Competition Round #5, 12:10 pm – 1:10pm
- Lunch available, 11:30 – 1 pm
- Competition Round #6, 1:10 – 2:30 pm
- Awards Ceremony, 2:30 – 3 pm

All machines must be removed from the site by noon on Monday, September 28, 2020.

TEAM CAPTAINS

Each team must appoint a Team Captain to act as a point of contact during the competition, and for pre-event meetings and correspondence. Team Captains will be in charge of all communication between the Punkin Chunkin staff and their team members during the competition.

PARKING

Each registered team will receive two parking passes. This pass will allow you to park in the Chunker lot. Access to the launch area/pit will be limited to machine drop-off and pick-up. No vehicles will be allowed to enter or exit the site from 8 a.m. to 5 p.m. on Saturday, September 26 and Sunday September 27. Parking for additional team vehicles will be available in public, designated areas at no cost.

SPONSORSHIPS

Support for teams and machines must be garnered individually. Groups or businesses interested in event sponsorship should contact Tim Erickson at tiericks@auroragov.org or 303.739.7163.

MEDIA & PROMOTION

You may be asked to provide launching demonstrations, comments or photos to be used in event promotion. Any comments made or photographs or video taken of the event, you and/or your machine can be used on any promotional or event material without prior authorization or compensation.

DEADLINES, REQUIRED MEETINGS and INSPECTIONS

Thursday, August 27 – Deadline for team registration and mandatory team meeting

Friday, September 25 – Safety inspection, pumpkin weighing and launch trials. Inspections will begin at 8 a.m. and must be completed by 2:30 p.m. All machines must be competition ready at this time. Overnight security will be provided Friday, Saturday and Sunday nights, September 25-27.

DIVISIONS

ADULT AIR CANNON – Compressed air only machine. An air compressor will be provided – for specs please contact Tim Erickson at

tiericks@auroragov.org

ADULT CENTRIFUGAL – Machines shall spin at least 1 revolution before launching.

ADULT TREBUCHET – Machine shall consist of swinging or fixed counterweights that can be made of wood, metal, or plastic.

ADULT CATAPULT – Machine shall consist of springs, cords, rubber, dead weights or other mechanical means of creating a stored energy.

ADULT TORSION – Machine shall consist of torsion springs, or cords that once wrapped around its axle (pivot point) will create a stored energy.

ADULT HUMAN POWERED – Any means of storing potential or kinetic energy, bicycle, electric winch, gas powered internal combustion engine, etc.

YOUTH (17 years and younger) – Any means of storing potential or kinetic energy, bicycle, electric winch, gas powered internal combustion engine that is operated by teens.

PUMPKINS

All pumpkins used for launching must weigh between 8 - 10 pounds in the adult divisions and at least 4 pounds for the youth division.

JUDGING

Winners will be declared in each division and also for the team with the longest distance overall. Each team will be given five (5) chances to launch for distance during competition rounds, and their longest launch will be used for judging.

Division Winners: teams in each division that launch a pumpkin the farthest. Distances will be recorded based on the figures reported by the survey team, rounded to the nearest two decimals and recorded as such. The consensus of the survey team, Pit Boss and Chunker Liaison will determine final winner. If pumpkins are chunked outside the property boundary fence onto any road right of way, that launch will be forfeited and will not be measured. Two launches outside the fenced area will result in full disqualification from the event.

Grand Champion: the team that launches the longest chunk amongst all competitors is declared the Grand Champion winner of the entire competition as well as the winner of their designated division.

RULES & REGULATIONS

1. All pumpkins fired must remain intact until they impact the ground to obtain an official measurement.
2. No part of the machine shall cross the firing line.
3. No Wadding (including bean chaff, straw, foam, metal, or any other object.)
4. No explosives are allowed.
5. No glass bottles are allowed.
6. Punkin Chunkin Colorado is not responsible for any equipment needs you may have once on the field. If you need equipment to set up or disassemble your machine, you must make those arrangements prior to the event.
7. Punkin Chunkin Colorado reserves the right to combine any divisions if there is a lack of participation. Any teams registered for a division that is subject to cutting will be contacted to determine which other division they want to compete in. This means that the team must meet the full qualifications of the division they are moved to. All divisions must have at least three entries to qualify to compete. If any division is cut for the year it will need three entries to open it again in the future. Machines can only enter one division per machine. Teams entering two machines on the same trailer in the same division may do so; provided they do not share components and they pay for both entries.
8. During each round, all machines must be able to fire within ten (10) minutes. Human power will get an additional two (2) minutes to cock the machine. (Keep in mind that every attempt is made to give you (20) minutes by informing you four machines or more down the firing line.) Any machine not able to fire when the pit boss decides your ten (10) minutes are up, will forfeit that round. No exceptions! Team captains are responsible for making sure they get their pumpkin weighed well enough in advance to ensure they have time they need to set up. Team Captains are responsible for making sure you are ready when it's your turn to chunk.
9. Pumpkins are not to be altered in any way, excluding Punkin Chunkin Colorado marker paints. All pumpkins must be in their natural state. Pumpkins fired from machines during competition will be measured from the front of or the farthest point of the machine. Your pit number may be written on your pumpkin to help in the identification at the landing zone.

10. All machines must be set up in the assigned pit areas. You will be given notice of this area in advance. No excuses will be entertained for not being in your assigned spot on event day. You will be required to move.

11. When using an 8-10 pound pumpkin, the longest distance of the event is the PUNKIN CHUNKER COLORADO CHAMPION and wins the overall chunk regardless of division. All other first place winners are Champions of their specific division entered.

12. Any machine using compressed air must have the pumpkin loaded before pressure is developed.

13. It is the responsibility of the prior year champion to return the traveling trophy to the current year's Punkin Chunkin Colorado event. The trophy must be kept in good condition.

14. If you are disqualified for any round for breaking Safety and General Rules you will forfeit your longest distance, not the distance of the shot you are being disqualified on. Final disposition of any rules violation will be determined by the Event Coordinator without further appeal.

15. All machines and equipment used by Chunkers must be removed from the field one day after the Punkin Chunkin Colorado competition. Machine owner or team captain will pay towing and storage expenses for any machines and equipment left on field after deadline -Monday, September 23 at noon.

16. Punkin Chunkin Colorado Pit Passes **must** be worn by team members at all times. Access to the pits will require a Waiver and Release be signed at the pit entry. No pit entry is allowed without a pass and signed waiver. Only the following individuals are allowed in PIT area during competition rounds; Event Coordinator, PIT Boss, Survey Team, Inspector, PROS management staff, and volunteers and participant(s) with a pit pass. No other exceptions except in emergencies or requested by PIT Boss.

17. No alcohol in pit area. It is strongly recommended that launcher(s) do not consume any alcohol until the completion of the competition. Those determined to be under the influence of alcohol or drugs in such a way that they become a risk to themselves and others will be asked to leave the pit area. To remove a participant from the pit area will be determined by the Event Coordinator and PROS management staff.

18. Campers and/or tents for overnight camping are not allowed in the pit. Campers are also not allowed in the pit during the competition. Teams may bring their own tents and chairs for their designated team area. Tents may not exceed 20'x20' in size.

19. No pets are allowed at the Arapahoe County Racetrack venue including in and around the pit area. This is a regulation established by the Arapahoe County Racetrack to ensure the safety and well-being of all pets and people.

20. Children and youth in pits must be under adult supervision at all times.

26. INSPECTIONS: Team Captains must have signed acceptance of rules sheet before machines can be inspected. Machines may not chunk until safety officials inspect and approve them to be safe and in compliance with WCPCA rules. Any alterations after being inspected will require another inspection to be able to launch. Safety officials may require the following tests or other tests deemed necessary to ensure the machine is safe for WCPCA competition:

- Firing or “dry firing”, without pumpkin loaded, of the machine.
- A fully cocked stress test (approximately 15 minutes in duration).
- Disassembly of part or the entirety of the machine as needed to verify structural integrity, safety, and operation.

27. Those machines that are new to the competition or that have undergone significant modifications and/or repairs affecting Form, Fit, and Function, since last operated will receive particular scrutiny.

- *Form* shall mean a change in alteration of any component that deviates from code, standards, demonstrated common practices OSHA, ASME, or other standards as determined by Punkin Chunkin Colorado.
- *Fit* shall mean a change in a major component or major components installation.
- *Function* shall mean the design function of various components, such as welds, knots, bolting, cable clamps, or other mechanical attributes.

PUNKIN CHUNKIN COLORADO SAFETY RULES

1. Hoses must be in good operating condition. Chafed or cut hoses must not be used. If using Chicago type quick connects, safety pins must be installed in each of the two holes. Any recommended safety equipment designed for any type of coupler must be used. All air lines 1” in diameter and larger must be cabled to a stationary device.

2. All sections of your cannon barrel must be properly secured so that they will not separate and will stay stationary. Make sure you do not pinch or collapse your barrel when using aluminum barrel. All cannons not using an actuated valve powered by air or some other mechanical device must have a spring loaded normally open valve. The use of Plastic Polyvinyl Chloride (PVC) will not be allowed for air cannon barrels, due to the safety hazard of

this type of pipe. This pipe is not acceptable for compressed air use. The manufacturer of the pipe states it is unsafe to transport air in PVC pipe no matter what schedule you use. Air vessels made of PVC will be illegal. No PVC or plastic is allowed in pressurized areas of the vessel. A smaller A.S.M.E. relief valve can be placed on the vessel when the operation requires the tank to be filled from a cylinder tank. This valve will be set at or below the allowable working pressure of the vessel. All relief valves must be maintained in proper working order during operation of the machine.

3. Aluminum barrels suspended by cables must have the cables anchored to a substantial base to prevent whipping around. Plastic coated cable will not be allowed.

4. All machine captains and teammates are to follow Punkin Chunkin Colorado Rules or you will be penalized or disqualified, depending on the nature of which rule is broken. If you are penalized, you will forfeit your chance to chunk in that round of competition if disqualified you will be referred to rule #13 of the General Rules. Major infractions that are deemed as challenging the safety of the chunk and/or others around your machine will be discussed during a quorum of The Safety and Rules Committee to decide on the actions to take. The results of the Quorum will be relayed to the team captain. There will be zero tolerance for those who break safety rules.

5. All members and/or captains are to contact safety official before climbing any machine during competition and must have clearance from the safety committee. No one is to climb any machine while cocked, elevated or in a dangerous situation. Teams using ladders to assemble, Load, repair, or dismantle equipment must have a spotter to hold the ladder and/or a tie off to the ladder to prevent injury. Teams are recommended to use a safety harness when climbing over 10 feet above the ground.

6. It is at the discretion of the Safety Inspector to require a 15 min. fully cocked stress test and test fire to ensure public safety.

7. Punkin Chunkin Colorado reserves the right to request a team captain to dismantle his or her machine to inspect for foul play such as use of any propellant other than compressed air. If you are caught using any chemicals (NITROGEN, HELIUM, HYDROGEN or any illegal substances other than compressed air) you will be banned from the Punkin Chunkin Colorado chunk.

8. All portable air storage vessels used to fill their cannon must be stood upright and secured to a stationary device. No tanks or vessels may be stored lying down on the ground or transported lying down in any vehicle. Every vessel must have a safety cap on it when not in use. All nipples,

fittings, manifolds, or airlines must be capable of handling the pressure of air on them. This is your responsibility. All propane tanks must be secured to a stationary device.

9. Any air vessel under 5 cu. ft. is the responsibility of the owner or team captain to make sure it is safe to use. If the Safety Committee feels your vessel is not safe due to rust, pitted or damage, you will have to correct the problem before the vessel can be used.

10. All catapult and trebuchet machines must have a safety strap or mechanism to hold the throwing arm or boom in case of misfire when loading. You are responsible for making sure everyone stays clear of your machine, in case of a misfire. Personnel handling ropes or cable should wear gloves such as a sailing or repelling type to prevent burns.

11. Inspect all hydraulic lines each time you cock or lift your machine. Make sure winches can handle the load and cables are in good condition. Make sure your release mechanisms are heavy enough to handle the load. Make sure you have an automatic brake or a dog lock on winch or cocking device.

12. All winches and or cocking devices will need safety cages. Winch operators must be protected at all times when cocking their machine or throwing device. This is for any team who is placed in the line of fire during winch operation. If you are in the line of fire of the winch, the machine must have a safety cage installed between the team member in the line of fire and the winch in case of winch or cable failure.

13. All cannons must be secured to prevent upward recoil. It is the machine designer's responsibility to make sure winch and cables can handle the load put on them. Also cables and clamps must be installed correctly. Cannons, machine or throwing device on theatrical division must be inspected.

14. No children under 16 will be allowed to drive golf carts, four wheelers, dirt bikes, or ATVs alone. They may ride with an adult that has a valid driver's license. All golf carts, four wheelers, dirt bikes or ATVs must display their pit number on that vehicle in clear view. No golf carts, four wheelers, dirt bikes, or ATVs, are permitted on the field beyond firing line unless you are an association official or spotter actively engaged in spotting pumpkins.

15. Only Team spotters will be allowed on the landing field. They must remain on the landing field until released and must sign in & out at designated area. All spotters on motorized vehicles will operate their vehicles responsibly at their own risk.

16. Backstops will be required for any machine that can fire backwards (even if it never has done so). Teams may make their own backstops for the

chunk but they must be constructed to a WCPA approved design standard. Any machine inspected on the field or approved in advance, as "not able to fire backwards" will be exempt from this requirement. Machines marked for backstops that fire without one will be disqualified from the chunk. This includes anytime they fire while on the field. You may use the Punkin Chunkin Colorado backstop while firing.

17. Any machine found to have structural defects (weld fractures affecting the pressure vessel, load beams, firing pins, any load bearing members, supports or support subsystems) will be banned from chunking until repaired and re-inspected by a member of the Safety Committee.

18. No Lag bolts in load bearing applications. Lag bolts are considered low end load bearing components and will not be approved in any application where stress can fatigue the lag or the hole made for it. The approved method of attachment is with carriage, shoulder, or hex head bolts with washers and backing plates.

19. Any shackles on a machine must have a safety tie on pin to prevent loosening.

20. Small holes for stabilizers will be permitted. A 24"x24"x24" hole is acceptable and must be filled, tamped and topsoil replaced before leaving pit area. It is your responsibility to keep pedestrians from falling in your hole.

26. All team captains must sign the field roster stating that they have received, read, and understand the 2020 rules for Punkin Chunkin Colorado. This sheet will be on the field and given to the pit boss, if it is not signed, you do not chunk. All team captains must attend all safety field meetings. If the daily meeting roster is not signed at the end of the morning meeting you will not be tracked down and the team will not compete that day of competition.

27. Compressed air machines must have a bleed off device (valve) to allow for safely removing the air if the machine cannot be fired. This device should be installed so that it does not blow directly to the dirt or face level to prevent Eye injury. If it is exposed to the body level it should have a shield installed to deflect the air. All Air inlets on tank must have a Check Valve Installed.

23. No machine is to fire when a cease fire has been ordered. If you are locked and loaded or pressurized at this time, contact security, pit boss, safety committee, so you can safely discharge or bleed off air pressure. Pop off relief safety valves must have plastic shipping plugs removed when pressurizing any cannon or machine. Pop off relief safety valves are not to be altered or held down to prevent popping off. Pop off relief valves are not

to be reclosed after opening on their own while machine is being pressurized to fire.

24. Machines may not chunk until the safety committee inspects and approves them to be safe by the PUNKIN CHUNKIN COLORADO SAFETY RULES. Any alterations after being inspected will require another inspection to be able to fire. If your machine has been inspected, you will need to be re-inspected by a safety inspector official in order to fire again. The safety committee may require the team captain to fire their machine during the inspection process to ensure the machine is safe enough to compete at the Punkin Chunkin Colorado.

25. Hard Hats and Eye Protection to be worn by all fire line personnel in pit when firing.

26. A Fire Extinguisher and First Aid Kit will be provided by the City in plain view and clearly marked for all people to see in the pit area.

27. The following rules are State of Colorado requirements enforced by Colorado Department of Public Health and Environment (CDPHE), Division of Oil and Public Safety, Boiler Inspection Section. They are non-negotiable.

COLORADO DEPARTMENT OF HEALTH AND ENVIRONMENT (CDPHE)
RULES:

1. All pressure vessels shall be built to the American Society of Mechanical Engineers (A.S.M.E.) construction codes. The vessels will have a manufactures nameplate with proper (A.S.M.E.) stamping and will be marked with the vessel's allowable working pressure.

2. All pressure vessels shall be equipped with A.S.M.E. approved and sealed relief valve set at or below the allowable working vessel. The relief valve will need approval by the boiler safety so it is recommended you contact them before purchasing the valve. The owner/user shall assure that the relief valve(s) is functional at all times. The relief valve(s) shall be tested by the owner/user at the time of inspection.

3. Each vessel shall be inspected by the Colorado Division of Oil and Public Safety Boiler Inspection Section and issued an operating certificate if the vessel meets all the requirements for operations in the State of Colorado. These certificates are valid for indefinitely from the date of inspection/ issuance. This certificate must be in hand before machine can enter the field.

4. Any alterations and repairs made to the pressure vessel must meet the National Board of Boilers and Pressure Vessel Inspectors Code (NBIC). Any

air cannons no matter where they are constructed must meet existing CDPHE regulations. No grandfathered vessels allowed.

5. In accordance with ASME Sect VIII – Div 1, para U-1(c)(2)(i), if the pressure vessel inside diameter does not exceed six (6) inches, it is exempt from the code, regardless of length or pressure.

6. All vessels regardless of origination, operated at the event must meet these requirements.

7. Punkin Chunkin Colorado will not deviate from the CDPHE requirements and must ensure enforcement of those requirements.

DIVISION MACHINE DESCRIPTIONS

Adult Air Cannon Division (18 and older)

1. Pumpkins must weigh between 8 & 10 pounds.
2. "Compressed air only"
3. Pumpkin must be loaded before pressurizing vessels, and an Official must see you load it
4. All air inlets on vessel must have a check valve installed.
5. Horn or sound device must sound when firing down range for safety or spotter on the field.
6. See Safety and General Rules.

Adult Centrifugal Division (18 and older)

1. Pumpkins must weigh between 8 & 10 pounds.
2. Machines shall spin at least 1 revolution before launching.
3. These machines require back stops.
4. All Centrifugal machines must be equipped with a safety hub.
5. Horn or sound device must sound when firing down range for safety or spotter on the field.
6. See Safety and General Rules.

Adult Trebuchet Division (18 and older)

1. Pumpkins must weigh between 8 & 10 pounds.
2. Machine shall consist of swinging, or fixed counterweights. They can be made of wood, metal, or plastic.
3. A mechanical device may be used to cock machine.
4. These machines require back stops.
5. Horn or sound device must sound when firing down range for safety of spotter on the field.
6. See Safety and General Rules.

Adult Catapult Division (18 and older)

1. Pumpkins must weigh between 8 & 10 pounds
2. Machine shall consist of springs, cords, rubber, dead weights, or other mechanical means of creating a stored energy.
3. A mechanical device may be used to cock machine.
4. These machines require back stops
5. Horn or sound device must sound when firing down range for safety or spotter on the field.
6. See Safety and General Rules.

Adult Torsion Catapult Division (18 and older)

1. Pumpkins must weigh between 8 & 10 pounds.
2. Machine shall consist of torsion springs, or cords that once wrapped around its axle (pivot point) will create a stored energy.
3. A mechanical device may be used to cock machine.
4. These machines require back stops.
5. Horn or sound device must sound when firing down range for the safety of the spotter on the field.
6. See Safety and General Rules.

Adult Human Power Division (18 and older)

1. Pumpkins must weigh between 8 & 10 pounds.
2. Machines can use any kind of stored energy that can be stored by a single person in two minutes. (Energy must be stored by the power of this one person, not by other means.)
3. Contestants shall be given a maximum of (2) two minutes from the start of cocking their machine until fully cocked. The machine is then locked for safety. (This does not include the three (3) minute rule for being ready to fire).
4. Some may require backstops due to the type of machine.
5. Horn or sound device must sound when firing down range for safety of spotter on the field.
6. See Safety and General Rules.

Youth (17 and younger) Division – Air Cannon

1. Pumpkins must weigh no less than 4 pounds.
2. "Compressed air only" may be used.
3. Youth machines must be designed so that a youth can perform all aspects of the set-up, loading, and full operation of the machine. If the team youth are not able to perform all tasks the machine will be scored in the equivalent adult division.
4. Pumpkin must be loaded before pressurizing vessels, and Official must see you load it
5. All Air inlets on vessel must have a check valve Installed.
6. Youth in pits must be under adult supervision at all times. Example: Youth could fire machine while unattended and be injured or injure someone else.

7. Horn or sound device must sound when firing down range for the safety of the spotter on the field.
8. See Safety and General Rules.

Youth (17 and younger) Division – Catapult

1. Pumpkins must weigh no less than 4 pounds.
2. Youth machines must be designed so that the youth can perform all aspects of the set-up, loading, and full operation of the machine. If the team youth are not able to perform all tasks the machine will be scored in the equivalent adult division.
3. A mechanical Device may be used to cock machine.
4. Machine shall consist of springs, cords, rubber, dead weights, or other mechanical means of creating a stored energy.
5. These machines need a back stop
6. Youth in pits must be under adult supervision at all times. Example: Youth could fire machine while unattended and be injured or injure someone else.
7. Horn or sound device must sound when firing down range for the safety of the spotter on the field.
8. See Safety and General Rules.

Youth (17 and younger) Division – Trebuchet

1. Pumpkins must weigh no less than 4 pounds.
2. Machine shall consist of swinging, or fixed counterweights.
3. Youth machines must be designed so that the youth can perform all aspects of the set-up, loading, and full operation of the machine. If the team youth are not able to perform all tasks the machine will be scored in the equivalent adult division.
4. A mechanical device may be used to cock machine.
5. These machines require back stops.
6. Youth in pits must be under adult supervision at all times. Example: Youth could fire machine while unattended and be injured or injure someone else.
7. Horn or sound device must sound when firing down range for safety of spotter on the field.
8. See Safety and General Rules.

Youth (17 and younger) Division – Human Power

1. Pumpkins must weigh no less than 4 pounds.
2. Machines can use any kind of stored energy that can be stored by a single person in two minutes.
3. Contestants shall be given a maximum of (2) two minutes from the start of cocking their machine until fully cocked and locked for safety. (This does not include the three (3) minute rule for being ready to fire)
4. Youth machines must be designed so that the youth can perform all aspects of the set-up, loading, and full operation of the machine. If the team youth are not able to perform all tasks the machine will be scored in the equivalent adult division.

5. Some may require Backstops due to the type of machine.
6. Youth in pits must be under adult supervision at all times. Example: Youth could fire machine while unattended and be injured or injure someone else.
7. Horn or sound device must sound when firing down range for safety of spotter on the field.
8. See Safety and General Rules.