



OFFICIAL EVENT RULES AND PROCEDURES

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1 GENERAL RULES (Applies to all Blackhawk 500 Events)

1.1 Qualification

All registered BSA Mt. Diablo Silverado Council Tigers, Cubs, and Webelos Scouts may design, build and enter cars that are eligible to participate in the "Cub Scout Race" event and the "Cub Scout Show / Design Event."

1.2 Essential Materials

All cars entered shall be constructed from the "Official Grand Prix Pinewood Derby Kit" (referred to below as the kit) as distributed by the Boy Scouts of America Supply Division. Additional kits may be purchased from the Scout Service Center, Pleasant Hill, CA. (Kits may be purchased elsewhere if they are of the exact type manufactured for the BSA as specified above.) **The use of pre-shaped car bodies, machined wheels or axles acquired from the Internet or other sources is NOT allowed.**

1.3 Competitor Categories

The Blackhawk 500 Racing Committee reserves the right to modify race groups in light of the number of entries.

Race: Cub Scouts will compete with others of the same Cub Scout rank. The first, second, and third place winners in each rank-level will move on to the finals within the "race" event. (See section 3.2.2 for details)

Show: All entrants will compete evenly, regardless of age or rank. Museum docents will classify and judge entries.

1.4 Attendance

The Cub Scout SHOULD enter his own car. This means that the Cub Scout should be present at "Inspection and Registration" to enter his car into competition. If the Cub is unable to be present, then the Cub may select another Cub Scout to act as his proxy for a part of, or the entire Blackhawk 500 event.

1.5 "Work"

ALL work (including improvements to wheels, axles, and car body) must be done by the scout and the parent (Akalea.) The intent is to have the scout build as much of the car as reasonably and safely as possible. Construction of ALL entries MUST have begun DURING the current Scouting year. Last (or previous) Scouting year's cars are not acceptable.

1.6 Single Entry per Person

Only one car may be registered per person for any and all events. A Cub may not enter separate cars in both the race and design competitions, and a single car cannot be entered in more than one competition.

1.7 Inspection and Registration

Each car must pass a technical inspection before it may compete. Technical inspection and registration of cars will occur at dates, times, and locations specified by the Blackhawk 500 organizing committee. All registration and inspection will take place prior to the date of the event. All competitors will be notified of the registration details prior to the event either directly by e-mail (if an address has been provided) or by a posting on www.blackhawk500.org, the event web site.

1.8 Late Registration and Inspection

All registrations must be completed by the last registration date and time specified by the Event Committee. Late registrations will not be accepted. No exceptions. **There will be no provisions for registration and inspection at the Blackhawk Museum on the day of the event.**

1.9 Failure to Pass Inspection

The Inspection Committee shall disqualify cars that do not meet the rules as described herein. If a car does not pass inspection, the owner will be informed of the reason his car did not pass. Cars which fail the initial inspection may either be modified at the registration site or taken home for modifications and brought back for final inspection and registration no later than the last registration date and time specified by the Event Committee.

1.10 Impound

No car may be altered in any way after it has been registered and inspected. After a car completes registration it will be impounded and stored by the Blackhawk 500 team until competitions begin. Cub Scouts will have an opportunity to lubricate their cars one last time at the registration site before the car is impounded. Neither Cub Scouts nor their adult helpers will have access to cars after they have been impounded.

1.11 Car Design Rules Interpretation

Interpretations of the rules described in sections 1.1 through 1.10, and sections 2.6 through 2.10, are at the sole discretion of the Inspection Committee Judges present during the Registration and Inspection process.

1.12 Race-Day Rules Interpretation

On Race-Day, the Cub Scout must make all questions of rules interpretations and procedures to the Blackhawk 500 Chairperson or competition officials promptly. Decisions of competition officials on questions of rules interpretation and/or procedures may be appealed to the Blackhawk 500 Chairperson. All decisions of the Blackhawk 500 Chairperson are final. Decisions of Race Officials on *questions of fact* (i.e. the result of a specific race) may not be appealed beyond the Trackmaster and/or Finish Line Judges. **Note:** Un-sportsmanlike conduct by any participant or spectator will be grounds for expulsion from the competition and/or the race area.

1.13 Changes to the Rules

The Blackhawk 500 Committee, at its sole discretion, reserves the right to modify these rules to ensure smooth conduct of the event.

2 CUB SCOUT CAR DESIGN STANDARDS

2.1 Material

Race cars shall be constructed for this event from the parts contained in the Official Grand Prix Pinewood Derby Kit (referred to below as the kit) as sold by the Scout Service Center, Pleasant Hill, CA. Materials from the kit may be supplemented but not replaced.

The use of pre-shaped car bodies, machined wheels or axles acquired from the Internet or other sources is NOT allowed.

2.2 Weight

Racecars may weigh no more than five (5) ounces (total weight) as determined on the official scales during the pre-race check-in.

2.3 Wheels and Axles

The car shall roll on the wheels from the kit. The wheels shall turn about the axle nails from the kit. The axle nails shall be firmly affixed to the wood of the car body. The Cub may cut new axle slots (or drill new axle holes) in the original block from the kit. The original axle-to-axle spacing of 4.40" ($\pm 0.125"$ ($1/8$)) must, however, be maintained. It must be obvious to the judges that the original groove spacing, wheels, and the nails from the kit are being used.

Axle nails must be mounted parallel to the track surface. Tilted or canted axles that cause the car to run on the edge of the wheels are not allowed. Wheels must run flat on the track surface. At least three wheels must be in contact with the track surface at all times as the car rolls.

2.4 Size

Cars may be no longer than 7.00 inches with a maximum width of 2.75 ($2\frac{3}{4}$) inches and a maximum height of 4.00 inches as determined by the official gages during the Registration and Inspection process. Underside clearance of at least 0.375 ($3/8$) inches and inside wheel to wheel clearance of at least 1.75 ($1\frac{3}{4}$) inches is required to allow the car to clear the racetrack's center guide-strip. Adequate clearance is the responsibility of the racecar builder.

IMPORTANT NOTE: Wood blocks supplied in the official kits are often slightly longer than 7.00 inches to allow for final shaping and sanding. Be sure to check the final dimensions of your car carefully. Do not assume that the dimensions of the block supplied in the kit will automatically be legal.

2.5 Weights and Attachment

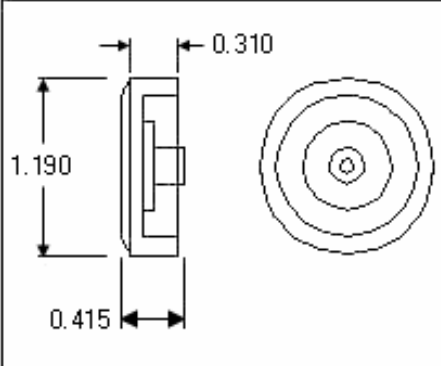
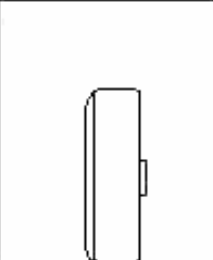
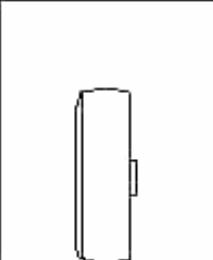
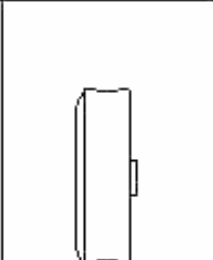
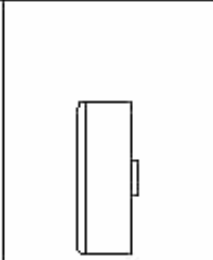
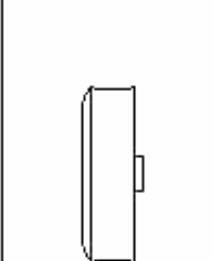
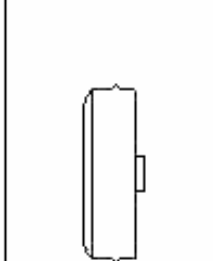
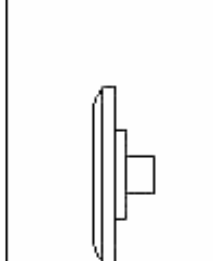
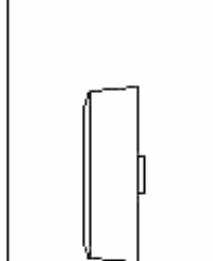
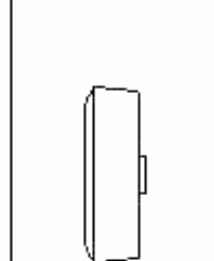
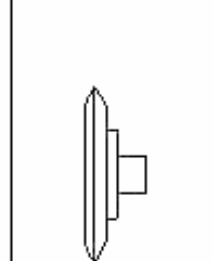
Weight may be added to the car and will be considered part of the car for purposes of all measurements. "Weight" is considered to be any material on the car that is not provided in the kit. All weight must be securely fastened to the car, e.g. by permanent glue, nails or screws, but not by "sticky substances", e.g. tape, or tack spray. Weights shall be passive, i.e. non-moveable, non-magnetic, non-electric, non-sticky, etc.

2.6 Wheel Treatment

NOTE: This rule does not apply to cars entered in the Design/Show event. Wheel treatment (hub and tread smoothing and polishing) may not result in substantial removal of mass or in reducing the wheel width or diameter from the original kit wheels. Some of the original "tread marks" on the wheel face must remain intact, i.e. apparent to the inspector. ("Tread marks" are the small zigzag lines visible at the very outer edges of the wheel when it is viewed parallel to the axle line.) Wheels may not be machined or sanded to a beveled condition. At least 80% of the original wheel width must contact with the track surface, and the portion of the wheel surface that contacts the track must remain parallel to the axle

The hub through which the axle nail passes cannot be shortened. The area between the hub and contact surface of the wheel cannot be drilled or otherwise opened.

Examples of wheel treatments NOT allowed as specified in 3.2.2.

 <p>STANDARD WHEEL</p>		 <p>ROUNDED WHEEL</p>	 <p>"V" WHEEL</p>	 <p>CUPPED WHEEL</p>	 <p>REDUCED DIAMETER</p>
 <p>"H" WHEEL</p>	 <p>RIB WHEEL</p>	 <p>SPEED WHEEL</p>	 <p>SLANTED OUT</p>	 <p>SLANTED IN</p>	 <p>KNIFE EDGE</p>

2.7 Unacceptable Construction

NOTE: *This rule does not apply to cars entered in the Design/Show event.* Hubcaps, washers, inserts, sleeves, and bearings may **NOT** be used in conjunction with the wheels and/or axles.

2.8 Gravity Powered

NOTE: *This rule does not apply to cars entered in the Design/Show event.* The racecar may not be constructed or treated in such a way that the track's starting mechanism imparts momentum to the car. For instance, this provision disqualifies cars with sticky substances on the front of the car and protrusions, which may catch on the starting pin. No portion of the car may protrude in front of the starting pin when the car is placed on the starting line.

2.9 Lubricants

Only dry lubricants such as graphite or powdered Teflon "white lube" will be allowed for lubricating the wheels. *Lubricants may not foul the track. Lubrication is not required for Design/Show cars.*

2.10 Exceptions for DESIGN/SHOW Cars Only

Technical Standards from the above rules (except as noted) apply to all design/show cars with the following exceptions: The block of wood from the kit, or portions thereof, must be *prominent* in the design. "ADD-ONS" are not restricted. Special, decals, decorations, etc. are allowed. Wheels must be from the kit but the axle nails from the kit need not be used.

3 CONDUCT OF THE RACE AND SHOW EVENTS

3.1 The Show

Cars will be displayed for judging side by side in assigned spaces on museum display tables, grouped with their competitors. Cars will be judged based on the skill displayed in each car's unique design. Careful consideration will be given to the age of the car's builder, the creativity expressed in the car's appearance, and the technical merit expressed in the car's design. Every boy that enters this event will be recognized with a Blackhawk 500 event patch.

3.1.1 Show Competition Judges

Our team of impartial experts and VIPs who have been appointed by the Event Chairperson will judge all show/design entrants.

3.1.2 Judging and Awards

All cars will be judged together for all of the categories listed below. The judges will use their discretion on which category they think the cars best fit. There will be no judging by Rank. Awards will be given to the first five cars for each category for a total of 30 awards. The categories are:

1. Most Realistic
2. Most Futuristic
3. Most Artistic
4. Most Creative
5. Most Extravagant
6. Judges Choice

3.1.3 Blackhawk Cup

In addition to the categories listed in section 3.1.2, the Show Competition will include a special category for the Blackhawk Cup. This category will consist of cars designed to look like one of the real cars that is displayed in the Blackhawk Museum's automobile collection, or other real car of a type, model and make that might be displayed in the Blackhawk Museum. Cubs wishing to enter this category must indicate so at the time of registration, otherwise their car will be included in judging for the other categories in section 3.1.2. All cars submitted for the Blackhawk Cup category must be accompanied by an index card listing at least the year, model, and make of the real car being copied. Additional descriptive information such as body style and body designer and manufacturer can be included if known. If the car is modeled after a real car that is not in the Blackhawk Museums collection, a photograph of the real car should be included. The index card should be tied to an axle or other convenient place so that it stays with the car.

Judging for the Blackhawk Cup will be judged based on the accuracy and realism of the replica and the skill shown in creating the model.

3.1.4 "Spirit of Scouting" Award

In addition to the categories listed in section 3.1.2 and 3.1.2, the Race AND Show Competition will now include a special category for the "Spirit of Scouting" Award. Cars will be judged based on the one that best exemplifies the Cub Scout motto "Do Your Best" in the building of the car by the Cub Scout, with little or no assistance from others.

3.2 The Race

Competition will consist of heat races within each rank level, and a series of final heats at the event level. Track officials are responsible for the proper conduct of the races.

3.2.1 Car Handling Responsibility

Blackhawk 500 Event Staff will make sure that all impounded cars are transported to the Blackhawk Museum. The “Starter Team” will stage cars on the tracks.

3.2.2 Race Heats and Finals

Rank Races:

The main body of the Blackhawk 500 race event consists of 4 separate derbies, one for each Cub Scout rank (Tigers, Wolves, Bears, and Webelos.)

The method of racing (for example, number of heats, method of elimination, etc.) will be determined by the Event Committee and announced prior to the beginning of the first race. In selecting the method of racing, the Event Committee will try to maximize the number of times that each car can race in the available time. The exact method of racing will depend on the number of cars entered in each rank and the total time available for racing.

Finals:

The top 3 cars from each Rank derby will proceed to finals (a total of 12 cars.) Finals will be conducted on one track of 6 lanes.

The method of racing (for example, number of heats, method of elimination, etc.) will be determined by the Event Committee and announced prior to the beginning of the first race. In selecting the method of racing, the Event Committee will try to maximize the number of times that each car can race in the available time.

3.2.3 Car Leaves Lane

If, during a race heat, a car leaves its lane but proceeds down the track in a manner that does not interfere with its opponent, then the race will be called normally. If the car leaves its lane and interferes with another car, the race will be re-staged and re-run. If the same car again leaves its lane and interferes with another car; that car will be judged last place for that race heat, and the race heat will be re-staged and re-run without that car.

3.2.4 Car Leaves Track

If, during a race heat, a car leaves the track without interfering with its opponent, it shall be considered to have ended its heat at that point.

3.2.5 Car Repair (Without Fault)

If, during the race, a wheel falls off or the car becomes otherwise damaged, then the SCOUT may, to the best of his ability perform repairs with the assistance of his adult partner or Pit Crew member. In order not to unduly delay the event, a maximum time of five minutes will be allowed to complete all repairs to a car. If repairs cannot be completed within the five minutes allowed, the car will be retired from racing and the heat will continue with the remaining cars. Tools and supplies required to complete repairs are the responsibility of the entrant. Please note that the Blackhawk 500 Committee will not provide any tools or supplies at the event site.

3.2.6 Car Repair (With Fault)

If a car is damaged due to track fault, or damage caused by another car or person, then the Trackmaster, at his sole discretion, may allow additional repair assistance to the Cub. The repair time limit described in section 3.2.5 will apply.

3.2.7 No Finishers

If, during a race heat, no car reaches the finish line on the track, the car that went the farthest in its lane shall be declared as the heat winner.

3.2.8 Track Champions

The top three finishing cars from each rank level will be impounded in the staging area until the start of the Final Heats.

3.2.9 Track Fault

If a car leaves its lane, at his sole discretion, the Trackmaster may inspect the track and, if a track fault is found which probably caused the initial violation, the Trackmaster may order the race heat to be rerun after the track is repaired.

3.2.10 The Race Area

Only race officials may enter the track area. This rule will be strictly enforced.

3.2.11 Rewards and Recognition

The most important values in the Blackhawk 500 competition are parent/son participation, good sportsmanship, and learning how to follow rules. The Awards Committee is responsible for recognizing and encouraging these qualities in addition to traditional racing awards. Cubs will be recognized as follows:

- a) Every participating Cub Scout will receive a Blackhawk 500 patch.
 - b) Awards will be granted to the first through sixth place finishers in each Cub Scout rank level.
 - c) Trophies will be awarded for the first through sixth-place finishers overall in the Blackhawk 500 event.
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4 THE RACING ENVIRONMENT

4.1 Tracks

Two high-quality Derby tracks will be utilized for the Blackhawk 500 event.

4.2 Track Slope

The track's slope shall decrease from approximately 30-45 degrees at the starting line to approximately 0 degrees at the finish line.

4.3 Lanes

Each lane on both tracks will consist of a straight, smooth center guide-strip approximately 1.50 (1½) inches, but less than 1.75 (1¾) inches, wide and approximately 0.25 (¼) inches, but less than 0.375 (¾) inches thick, centered on a smooth surface no less than 4 inches wide. Each racecar shall straddle such a strip during its heats.

4.4 Starting Mechanism

The "starting lines" shall consist of vertical pins of approximately 0.25 (¼) inch diameter, extending approximately 1 inch above the track surface and approximately centered in the each lane.

4.5 Finish Line Sensor Location

Both tracks will utilize electronic "finish line sensors" that shall be in alignment with the corresponding starting line pin and be approximately centered in its lane.

4.6 Finish Line Judging

In the case of mechanical difficulties, three impartial Finish Line Judges shall be at station to observe each heat, on each track. Otherwise, heat finish judging will be determined by the finish line sensor, but may be challenged by a majority rule of the Finish Line Judges. If the track's electronic finish line sensor's result is challenged by the Finish Line Judges, the race will be re-staged and re-run.

4.7 Finish Line Judge Backup

Finish Line Judges will temporarily excuse themselves if they know that one of the heat contestants is a son or relative. Backup Finish Line Judges shall be available in case a judge needs to be excused for any reason.

4.8 The "Big Boards"

Each electronic finish line judge will be connected to a computer that will collect and display results on a large projection screen at the base of each track. We will be using proven, commercially available derby software to manage the race results.

4.9 Finish Line Electronics Sensitivity

Track Finish Line Electronics must trigger correctly if a lead pencil is passed 0.75 (¾) inches above the track surface at a speed of 15 feet per second.

4.10 Finish Line Clearance

Track Finish Line Electronics and other track accessories must be no closer than 4.50 inches above the track.

5 SPECIAL NOTES TO ALL CONCERNED

The Blackhawk 500 event is a parent (or adult partner) and Cub event, and is recommended as such by the Boy Scouts of America. The Blackhawk 500 Committee *STRONGLY SUGGESTS* that each parent emphasize the following with your son:

Sportsmanship:

The three things the Blackhawk 500 requires each participant to learn are:

- 1) **Learn the craft skills necessary to build a car.**
The first thing to remember about sportsmanship is that everyone's skills are a little different. You may be good at something like singing or drawing, but not as good at something else like basketball or computers. Parents have different skill levels, too. This doesn't mean that you are a good person one time and not good another time. Remember, you and your friends are individual first and car builders second.
 - 2) **Rules must be followed.**
Without rules, there would be no Blackhawk 500. You will never know if you are really good at doing something unless you follow the rules. This is often called being honest.
 - 3) **Behavior and sportsmanship.**
There are winners and losers in every competition. You accept this when you choose to compete. There may be times when you win and feel happy, and times when you lose and feel unhappy. Being a winner is easy, and losing is sometimes hard. If you win, you must not brag or gloat. If you lose, you must not feel jealous or bitter. To be a good sportsman, you must be able to say, "I did my best" and be satisfied with the results. You must also be able to appreciate and feel happy for someone else when they run a good race or build a neat car.
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