



## North American Slot Racing Association, NASRA

These rules for wing car racing have been determined by the NASRA Board of Directors.

National events every year will be discussed and decided by the Board of Directors. Any raceway may submit their proposal to hold a national event. The proposed raceway must have held successful major events in the past, have proper air conditioning/heat, proper pit areas & proper parking for racers. Proposal must list major airports & hotels nearby. Once given the event, we ask the hosting raceway to propose an ideal schedule for the national event to the Board of Directors. We encourage hosting raceway to pursue a deal with hotels in the area for a group rate.

## General Rules for All Classes

### Racing Power

Racing power may not exceed 14.3 volts under no load.

## Width and Weight

All cars may not be more than 3.25 inches wide at any point.  
No minimum weight.

## Wheels, Axles and Bearings

All cars must have two front and two rear wheels, with rubber tires.

1. No rear tire minimum diameter.
2. Front tire minimum diameter is .500 inches.

Axles must be a minimum of 3/32 inch in diameter, may be hollow.  
Axle ball bearings allowed.

## Clearance

For all classes, the minimum track clearance of chassis, gear, and motor is .032" inches (.80 mm) prior to the beginning of the race unless specified otherwise. Once the race begins, a minimum rear clearance of .032 inches will be utilized during midrace tech inspections. No parts may drag. Guide flag/braid, and front and rear tires are exempt from this rule. Any cars found to have less than .032" clearance during race tech, must be correct and rechecked before going back on the track during green flag racing.

## Guide Flag

One guide per car.

## Body

All bodies must be fully painted and opaque when sitting on the tech block, except for the sides of the body, which may remain clear. All cars must display three numbers of reasonable size and position. All cars must contain a suitable interior.

## Air Control Devices

**No part may exceed 2.5 inches (63.5 mm), measured from the tech block surface. No air control devices can be opaque.**

1. Side dams may be a maximum of 2.5 inches (63.5 mm) high behind the rear wheel centerline and continue on a taper to a maximum of 2.0 inches (50.8 mm)

high at a point 3.75 inches (95.25 mm) forward of the rear wheel centerline. The same taper may continue ahead of the front wheels.

2. All air control devices must have their front edges taped and their outside corners rounded to a degree which will minimize the chance of injury to race participants and spectators.
3. Diaplane maximum length is .500 inches (12.7 mm). Corners must be rounded to help prevent injury to race participants and spectators.

## Parts Replacement

Any component may be replaced during competition **EXCEPT** the original chassis, body or **ANY** motor components in Two Motor classes. Any racer found to have switched chassis, body or **ANY** motor components in Two Motor classes, will be disqualified. All replacement parts must conform to the class rules.

## Amature Stack Length

Stack length minimums shall be required on all three poles of the armature (using calipers with the faces across each end of the pole) and only the actual lamination material shall be used to determine this figure. This is meant to specifically exclude, for example, such practices as the insertion of spacer--type materials between the laminations, abnormally thick applications of coatings, or any other method of artificial compliance with the rule. Any armature presented for tech inspection that is found to be illegal for competition (such as short stack) will be impounded until the completion of the racing class.

## Controller Specifications

Any controller/choke may be used as long as the controller/choke uses no batteries or additional power sources to increase or regulate voltage or amperage at track braid. Relays, if used, must be powered by track current only. Controllers/chokes are subject to inspection to verify compliance. Transistorized controllers are approved for use.

## Tire Rubber

No Speed type rubber or rubber deemed as Speed type rubber may be used in any race. Determination will be at the discretion of the Race Director.

## Spec Tires

Spec tires must be purchased from the host raceway at the event. **Classes which must run spec tires include, One Motor Group 12 (OMB), Hillbilly Box, Two Motor 15 and Cobalt 12.**

For the World Championships Hillbilly Box will not be a Spec tire class, this is to bring that class into conformity with ESROC and NPRA.

## Armature Modifications

May not modify armatures in restricted classes, you may, balance, true com, grind diameter of stacks, redye armature and adjust shaftlength, under no circumstances may you adjust length of lamiations or tamper with wire or epoxy from manufacturer

## Class Specifications

### **One Motor Group 12 (OMB)**

Cahoza motors, magnets, cans, endbells, or brush hoods are NOT allowed in OMB, due to pricing considerations, as decided by the Board of Directors.

Only one motor is allowed per race.

### Motor Specifications

1. Can and endbell must be mass produced, full dimensioned can type (full top, bottom, and two sides, without cheater tabs or other artificial attempts to meet dimensional specifications) without modification. No aluminum endbells allowed. Inside can dimensions are defined as not less than:
  - a. Length, .925 inches (23.50 mm)
  - b. Width, .835 inches (21.21 mm)
  - c. Height, .560 inches (14.22 mm)
2. Components that are replacements from different manufacturers are allowed. This means magnets, endbells, hardware, cans, etc. may be interchanged.
3. Anodized spring cups are allowed.
4. Shunt wire, any springs, insulation may be used.
5. May use can and endbell ball bearings.

### Armature

1. Minimum stack diameter is .513, maximum stack diameter is .518
2. Minimum stack length is .350
3. 50 turns of 29 AWG. wire, handwound arms are not allowed.
4. Armature must be tagged with at least "12" .
5. The only arms allowed are Koford and Proslot.

## Magnets

1. Magnet dimensions plus or minus 10% are as follows:
  - a. Length, .500 inches (12.70 mm), maximum .500 and minimum .450
  - b. Width, .150 inches (3.81 mm)
  - c. Height, .550 inches (13.97 mm)
2. Magnets must be single piece ceramic only.

## Can Modifications

1. Use of can and end bell ball bearing is allowed.
2. Diameter of bushing locator hole may be altered to allow the stock size bushing to be centered.
3. Motor brushes and springs may be replaced and spring tension may be adjusted.
4. A 1/4" long x 1/8" wide x 1/8" deep notch may be cut in the can and magnet for axle clearance.

## Prohibited Modifications

1. Cut-outs or machine work on can or endbell.
2. Adding endbell heat sinks.
3. Drilling holes in can or endbell.

## Chassis

Any steel Group 12 chassis allowed, pans may be removed.

# Hillbilly Box

## Motor

1. Any C-cans, magnets and endbells will be allowed. This includes Cahoza.
2. Aluminum endbells are allowed.
3. Ball bearings, insulation, any springs and shunts are allowed.
4. Two motors allowed per race, both must be submitted at tech.

5. Magnet dimensions plus or minus 10% are as follows:
  - a. Length, .500 inches (12.70 mm), maximum .500 and minimum .450
  - b. Width, .150 inches (3.81 mm)
  - c. Height, .550 inches (13.97 mm)
6. Magnets must be single piece ceramic only

## Armature

1. Minimum stack diameter is .513, maximum stack diameter is .518
2. Minimum stack length is .350
3. 50 turns of 29 AWG. wire, may be handwound.
4. Armature must be tagged with at least "12" .
5. The only arms allowed are Koford and Proslot.

## Chassis

1. Chassis must be made of steel from a continuous piece from the guide mount to the rear axle centerline, to which the rear pillow blocks are attached.
2. No other restrictions.

# Two Motor 15

## Motor

1. Two motors allowed per race, both submitted at tech.
2. Can inside dimension minimums are defined as width as not less than .835 inches.
3. Magnets must be ceramic.
4. Ball bearings are allowed.

## Armature

1. Minimum stack length is .440.
2. Wound with 50 turns of 29 AWG wire.
3. Armature must be tagged with at least "15" .

## Chassis

1. No chassis restrictions.

# Cobalt 12

## Motor

1. No restrictions, except magnets.
2. Ball bearings are allowed
3. May use single, quad (4), or six (6) magnet motors only.
4. Two motors allowed per race, both submitted at tech.

## Armature

1. Minimum stack length is .350
2. 50 turns of 29 AWG. wire
3. Armature must be tagged with at least "12" .

## Chassis

1. No chassis restrictions.

# Group 27 Lite

## Motors

1. Cobalt magnet singles only, .400" tall X .440" long (+/- 5%)..
2. No restrictions.
3. Two motors allowed per race, both submitted at tech.

## Armature

1. Minimum stack length is .440.
2. Wound with 38 turns of 27 AWG wire.
3. Armature must be tagged with at least "27"
4. 2 out of 3 stacks must be .440 if 3rd stack is below .440 it may not be less than .435 .
5. May NOT split laminations to increase length of armature stack.

## Chassis

1. Chassis must be made of steel from a continuous piece from the guide mount to the rear axle centerline, to which the rear pillow blocks are attached.
2. No other restrictions.

## Two Motor Open

### Motor

1. No restrictions.
2. Two motors only allowed for race, both must be submitted at tech.
3. **NO** motor components may be changed or replaced, see "Parts Replacement" under "General Rules for All Classes".

### Chassis

No restrictions.

## Group 7 Open

### Motor

No restrictions.

### Chassis

No restrictions.



# General Race Rules

## Race Format, Two Motor, All Main

1. This race format is applicable to races run in One Motor Box, Hillbilly Box, Two Motor 15, Cobalt 12, 27 Light and Two Motor Open.
2. Two motors allowed for race including qualifying. May change motors during the race and switch back (A-B-A). No round robins. The mains will be run in reverse alphabetical order with the A Main being run last.
3. Once the car is in tech for the race and during racing or lane changes, no motor components may be changed. Components include, set up, armature, endbell, magnets, can, brushes, springs and bearings.
4. Racer with the largest lap total is the winner, regardless of which Main he/she races in.
5. Mains will be 4 minutes on and 4 minutes off, except for OMB which is 3 on 3 off.
6. The standard marshaling process will be followed, A main drivers will marshal the first race. All other racers will race their Main, then marshal the next Main.
7. Spare motors must be teched in with the car. The spare motor will be marked and impounded. When a racer wishes to change motors, he must get the motor from the race director.
8. All classes except G7 Opens will be run with spray glue, glue mixture will be determined between race director and raceway owner.

## Qualifying, Two Motor, All Main

Qualifying for all classes, except Cobalt 12 and G7 Opens, will be done at race voltage (14.3v max) in a single session of 1 minute on the Red lane. Cars will be impounded after qualifying and brought to the starting line after the seeding process is complete. Main seeded by qualifying positions 1st--8th A Main, 9th -16th B Main. A and B Main with odd number in the Higher of the two mains A and B. 17th – 24th C Main, 25th-32nd D Main. The racer will be allowed to put the lane sticker in place but not perform any work on the car.

## Lane Rotation

1. All 8 heat races, (G7 Quarterfinal, Semi, and Main races, and All Main classes), will follow the traditional system, Red, Green, Blue, Purple, Black, Yellow, Orange, White.
2. For G7 consis which are 4 heat races, racers will race on either the red or the black set.

## Cobalt 12 and G7 Qualifying

1. Order
  - a. Determined randomly, such as by blind draw.
2. Format
  - a. Time, a one minute run is allowed to establish the fastest single timed lap. The first qualifier will receive a one minute glue break period.
  - b. Byes, a racer may take one bye for any reason (may abort initial qualifying attempt and re---attempt during the bye round).
    - i. Each racer will receive two 30 second rounds for qualifying.
    - ii. Cars will be technically inspected prior to their bye round.
    - iii. Times made during the initial attempt and the bye round will count.
    - iv. Byes will be run (racers remaining time less a thirty second deduction) at the end of qualifying for each respective class; order will be the same as the original round.
  - c. Each racer will be given a specified amount of time (not to exceed fifteen seconds) to get hooked up to begin his/her qualifying round. This should be set into the computer to automatically start the time and make it uniform for all racers. Any registered racer not present to quality when called will be given an automatic bye. Any racer unavailable for the bye will stand by his/her previous best, or if no times are recorded, will be placed in the first (lowest) level of consolation races.
  - d. Local Option Format (excluding National Competition):
    - i. One minute with no byes.
    - ii. One minute with bye with no loss of time.
3. Qualifying power for Cobalt 12 and G7 may not exceed 16.0 volts under no load.
4. Qualifying for Cobalt 12 and G7 will be done on the orange lane.

## Australian Race Format for G7 Opens

1. All entrants will contest a series of Consis, Heats, Quarterfinals, Semifinals, and Finals depending on the number of entries.
2. All races designated as Consis will be contested over 4 lanes only, running on either the red set (red, green, blue, purple) or the black set (black, yellow, orange, white).
3. All other races will be contested over 8 lanes.
4. All races will be on a "move up" basis. The following schedule has been adopted to ensure that a minimum of four drivers move up from each race. The following has been created with the intention of racing with no "Round---Robin" races..
  - a. 1---8: Main only.
  - b. 9---10: top 2 qualifiers go to Main, run

- c. Semi, and top 6 move up. 11---16: 2
  - d. Semis and a Main.
  - e. 17: Top 10 Qualifiers go into Semis, 7 remaining go into 1
  - f. Quarter, and 6 move--- up to Semis.
  - g. 18: Top 10 Qualifiers go into Semis, 8 remaining go into 1
  - h. Quarter, and 6 move--- up to Semis.
  - i. 19: Top 12 Qualifiers go into Semis, 7 remaining go into 1
  - j. Quarter, and 4 move--- up to Semis.
  - k. 20: Top 12 Qualifiers go into Semis, 8 remaining go into 1
  - l. Quarter, and 4 move--- up to Semis.
  - m. 21---23: top eight qualifiers move to Semis, all others divide
  - n. into 2 heats moving up 4 most lap totals from each. Then
  - o. run two Semis and a Main.
  - p. 24---32:4 Quarterfinals,2 Semis,and a Main.
    - i. 33---34:Top 26 from qualifying into Quarters. Remaining racers into
    - ii. one 4---lane 2x3 race using red set, black set rotation with the top 6
    - iii. moving into Quarters. 2 Semis and a Main.
    - iv. 35---36: top 28 qualifiers into Quarters. Remaining racers run one 4---
    - v. lane 2x3 race using red set, black set rotation with top 4 moving to
    - vi. Quarters. Then 2 Semis and a Main.
    - vii. 37---38: top 22 qualifiers into Quarters. Remaining run two 4 lane 2x3
    - viii. races using the red set black set rotation. Top 5 from each move into
    - ix. Quarters. Then 2 Semis and a Main.
    - x. 39---48: Top 16 qualifiers into Quarters. Remaining racers into four 4-
    - xi. --lane 2x3 races using red set, black set rotation. Top 4 from each
    - xii. race moving into Quarters. Then 2 Semis and a Main.
    - xiii. 49---54: Top 22 qualifiers into Quarters. Remaining racers into
    - xiv. four 4---lane 2x3 races using red set, black set rotation. Top two
    - xv. from each moving into Quarters plus two top lap totals not
    - xvi. finishing 1 or 2. Then 2 Semis and a Main.
    - xvii. 55---64: Top 16 into Quarters. 17---32 into consis. Remaining into
    - xviii. four sub---consis using 4 lane 2x3 red set, black set rotation. Four
    - xix. move up each race. Then two Semis and Main.
    - xx. 65---80: Top 16 qualifiers into Quarters. Qualifiers 17---32 into consis.
    - xxi. Qualifiers 32---48 into sub---consis. Qualifiers 49---80 into sub---sub-
    - xxii. --consis. All consis using red set black set rotation with 4 lanes 2x3
    - xxiii. races. Top 4 from each moving up.
    - xxiv. 81---unlimited: using same as sub---sub---sub---sub.
5. Lane choice will be determined first by qualifying position then by lap total and position from previous heat. In moving racers up from Consis, Quarterfinals, or Semis, the same logic applies. Lane choice selection order is determined by the total laps turned by the winners of the qualifying race.

6. For Main event move-ups first pick goes to the racer with the most laps out of the two Semis, second pick goes to the racer with the most laps out of the other Semi.
7. Choices are then alternated between Semis. Third pick goes to the second place finisher in the Semi that had first pick, and fourth goes to the second place finisher in the Semi with second pick, etc. Racers are seeded into the appropriate Semi, Quarterfinals, or Consis according to the following pattern (example given for Semis and Quarterfinals; Consis same pattern as Quarterfinals).
8. Heats, Consis, and Quarterfinals are run: D, C, B, A.
9. Semis are run: B, A.