

*East Coast*

*Outlaws*

**HO SLOT CAR  
RACING CLUB**



**2019 - 2020**

**Official Rulebook**

**Effective August 21, 2019**

2019 - 2020 Rulebook

<b>Version Log</b> .....	3
<b>East Coast Outlaws Mission Statement</b> .....	4
<b>Membership</b> .....	4
<b>Club Funds</b> .....	4
<b>Event Host</b> .....	4
<b>Club Officers</b> .....	4
<b>Director</b> .....	4
<b>Treasurer</b> .....	5
<b>Tech Inspectors</b> .....	5
<b>Communications Directors</b> .....	5
<b>Scribe</b> .....	5
<b>2019 – 2020 Officers</b> .....	5
<b>Club Rules</b> .....	6
<b>Race Schedule</b> .....	6
<b>General Rules</b> .....	6
<b>Concourse Rules</b> .....	6
<b>Race Day Rules and Procedures</b> .....	7
<b>General Equipment Rules</b> .....	7
<b>Track Requirements</b> .....	7
<b>Hobby Stocks</b> .....	8
<b>Coupes</b> .....	9
<b>Magnatraction</b> .....	10
<b>Limited Super Stock</b> .....	11
<b>Grand National</b> .....	12
<b>Super Stock (SS)</b> .....	14

**Indy/Jalopy** ..... 17

**Tour Modified Class** ..... 19

**Appendix**..... 20

**Appendix A: Magnet Clarification**..... 20

    Magnet Clarification Pictures ..... 20

**Appendix B: Magnatraction Chassis Modification** ..... 21

**Appendix C: Magnatraction “boxed in” body mount**..... 21

**Version Log**

Version	Modification	Change Identification	Effective Date
0.1	Created from 2018 – 2019 Rules with modifications from Rules Meeting	<b><i>Changes are in Bold Italicized Text.</i></b>	8/21/2019
1.0	Finalized. Killer Bee and BBT-Jets magnets are allowed in Coupes, Limited SS, and SS	<b><i>Changes are in Bold Italicized Text.</i></b>	9/1/2019
1.1	Added clarification that shims are not allowed in Hobbystock since the vote to allow shims did not pass. This is simply to clarify the existing rule with the current interpretation by the tech inspectors	<b><i>Changes are in Bold Italicized Text.</i></b>	9/3/2019

2019 - 2020 Rules Effective 9/3/2019

## **East Coast Outlaws Mission Statement**

The East Coast Outlaws is a slot car club. We are dedicated to making HO racing fun for every participant. We do this by having organized procedures, clear rules, and high standards for our racing venues.

### ***Membership***

By being a member in the East Coast Outlaws group a person will abide by the rules and spirit of the group.

Membership in the club is renewed every season with the beginning of the season being the annual rules meeting. To be a member in the East Coast Outlaws group a person will pay their membership dues at the annual rules meeting or the first race of the season they attend. If a driver is unable to pay the membership fee, but would like to be a member, they should contact the Club Director. We will not turn someone away due to financial hardship. To be eligible to vote at a rules meeting, a member must have attended at least 4 races during the prior season.

### ***Club Funds***

- The annual dues for membership in the East Coast Outlaws are \$20.
- The fee to participate in an East Coast Outlaws race event is \$10 for anyone in attendance.
- Club officials have discretion to disperse funds for club expenses that do not exceed \$150.00. Otherwise, funds will be disbursed based upon a majority vote by the paid club members. Requests for disbursement of funds will be submitted on the Club Forum or at a Club Event. Members will be given one week to vote to approve the disbursement. A majority vote will be based on the responses. If a member does not respond, it will not affect the vote either way. The only exceptions to this rule is the disbursement of money to the Event Host to defray the cost of lunch and a maximum of \$200.00 is reserved to be dispersed to Club Members who attend the ECHORR Challenge.

### ***Event Host***

The person hosting the racing event for the day. The event host is relieved of all marshaling duties for the day. Hosts will set the limit of guests that members can bring. Associate racers such as sons, daughters or relatives are always welcome. If the Communication Director is not able, the Event Host will provide the Club Director with a race Report summarizing the event in a timely manner after the event. The Event Host will be compensated for food and beverage costs incurred up to one half of the entry fees collected on that day.

## **Club Officers**

### ***Director***

The director will see to it that all East Coast Outlaws rules are enforced to the letter to ensure fair racing for all members. The club director has the last word on any discrepancy or issue and all club business. This is an elected position with a 2-year term. The election for Director is to be held at the annual rules meeting.

Typically, the club director MC's the events on race day. In the event the current club director is not in attendance, a stand-in (former club director, etc.) may direct race proceeding at a race event. Club director should make every effort to be present at club races.

### ***Treasurer***

The club treasurer is responsible for all club funds. The treasurer will also submit a financial report at each East Coast Outlaws event for viewing by all members with no exceptions. Report must show the exact amount the club has at that point in time and any disbursements since the last event. This is an elected position. The election for Treasurer is to be held at the annual rules meeting.

### ***Tech Inspectors***

Tech inspection of the racing equipment prior to and after any race is the responsibility of the Tech Inspectors. There will be three tech inspectors consisting of the officials or active club members at each race. The inspectors will come to an agreement on any rule interpretations via a majority vote among the tech group. The tech inspectors are also responsible for a full understanding of the East Coast Outlaws rules. This is an elected position with a one-year term. The election for Tech Inspectors is to be held at the annual rules meeting.

### ***Communications Directors***

The Communications Directors are responsible for the creation, publication and distribution of the race report for each race. The Communications Directors will be responsible for all matters concerning Club communications including managing and moderating the Club's website ([www.ecoslotcars.com](http://www.ecoslotcars.com)) and Facebook page. The Communications Directors will be responsible for promoting the Club online through web forums, etc.

### ***Scribe***

The Scribe is responsible for documenting decisions made at the rules meeting. The document produced is not intended to be a transcript of a meeting but a record of the discussions made. The Scribe will use this information to update the Rulebook for the upcoming season and provide it to the Communications Director for distribution to club members. In addition, the Scribe will maintain the Club records, Race Results, and Attendance records.

### ***2019 – 2020 Officers***

- Directors: Dave Lockwood
- Treasurer: Greg Wisniewski
- Communications Directors: Jim Hoar, Jim Colligan
- Head Tech Inspector: Dave Lockwood
- Tech Inspector: Rick Morrissette
- Tech Inspector: ***Paul Moreau***
- Alternate Tech: Dave Kaiser (Flash), ***Don Hall***
- Scribe: Paul Ryer

## **Club Rules**

### ***Race Schedule***

Club race events will be from September through May pending availability of race venues. The annual race event schedule will be posted on the club website ([www.ecoslotcars.com](http://www.ecoslotcars.com)). Inclement weather or venue conflicts may postpone events. Please contact the race host prior to departing to an event to assure posted times and locations haven't changed.

### ***General Rules***

1. Foul language, aggressive attitudes, or any behavior deemed to be un-sportsman like is not tolerated.
2. Smoking is not permitted inside at any East Coast Outlaws event.
3. Excessive alcohol consumption is prohibited and subject to immediate club action.
4. Eating, drinking, cell phone usage or any distracting behaviors such as loud conversations are not allowed near the track during any racing conditions.
5. If you are signed in as a driver, you must marshal.
6. No substitute drivers.
7. No substitute cars.
8. After a car goes thru the tech procedure, it is impounded.
9. After the tech inspection you may not change body, chassis, bulkhead, armature or magnets.
10. Cars in tech are not to be removed except by the tech inspectors or by the driver of the car because he is about to race. Violation of this rule will result in that person being disqualified from that race.
11. If anything is not specifically stated or addressed in the rules, IT IS NOT PERMITTED.

### ***Concourse Rules***

1. There will be one concourse winner per event
2. Every racer who is participating at an event is eligible to vote
3. Once a body wins a concourse award it cannot be entered again for the remainder of that season.
4. The Communication Director will be responsible for conducting concourse voting

## **Race Day Rules and Procedures**

1. At each event there will be 3 classes raced unless otherwise stated in the race announcement.
  - a. **Track Owner and Club director will determine if one class will be IROC**
2. Race Day Schedule:
  - a. Doors Open at 8:00 AM
  - b. Practice is 8:00 to 9:30
  - c. Tech Inspections is 9:30 to 9:45. All cars must be in tech by 9:30
  - d. Concourse voting is 9:30 to 9:45
  - e. Drivers meeting is 9:45 to 10:00
  - f. First race starts at 10:00
3. Race Format
  - a. Format will be Round Robin with 3-minute heats.
  - b. For each race, drivers will be placed into the lineup in random order
  - c. Cars can be worked on between heats.
  - d. There will be a 90 second autorotation time in between heats. This can be overridden on race director's discretion.
  - e. At the end of the heat, each driver will move to the lane designated by the race management software using European rotation **except for IROC which will use standard rotation:**
    - i. Four Lane: 1->3->4->2
    - ii. Six Lane: 1->3->5->6->4->2
  - f. Marshalling:
    - i. Race format will be "Marshaled." Marshals will be present to return cars to their proper lanes.
    - ii. Track calls will be called for Marshall damage and cars that cannot be located. iii. Cars must have a color-coded lane sticker during the race.

## **General Equipment Rules**

1. The minimum wheelbase of any car is 1-3/8 (1.375) inches.
2. The maximum length of any car is not to exceed 3 (3.00) inches.
3. The maximum lateral movement of the front axle is 1/32 (0.03125).
4. The car must have 4 tires that touch the track.
5. Only one guide pin per car.
6. No tire glue or dressing.
7. Any type of controller can be used as long as it does not introduce an increase in voltage or amperage between the power supply and the track.

## **Track Requirements**

1. Track Mate software version 8.0 or newer must be used for timing and scoring. An operating power relay must be in place to turn power on and off for the start and end of the heat and for track calls.
2. Clearly marked driver stations colored to match corresponding lanes with clearly colored controller connections.
3. Clearly colored lanes.
4. Appropriate gauge wiring and wiring for dynamic braking.
5. All plastic tracks must have an apron of similar height on the outside of any turns.
6. An appropriate power supply for the divisions being raced that day.
7. The race table must have an acceptable retaining wall.

## Hobby Stocks

**Chassis and Gear plate:** Must be the stock Aurora or Model Motoring Thunder Jet Copper. Idler gear post may be squished. No other modifications are allowed.

**Armature:** Only OEM Aurora or Model Motoring 2 lam, minimum of 16 ohms. No modifications.

**Motor Magnets:** Magnets shall be manufactured by Aurora and originally supplied with the Thunder Jet chassis. Magnet combinations allowed are green/white, green/orange, black/black and black/ black with white stripe. No tough ones or AFX magnets allowed. AFX magnets can be distinguished by cut marks on the bottom of the magnet. **Shims are not allowed.** See [Appendix A: Magnet Clarification](#) for more detail

**Brushes:** Stock replacement only. No silver or composite compound brushes. Brushes may be scored with one score line or an X. No exaggerated deep cuts or crevices allowed; this will be checked for at tech.

**Pickup Shoes:** Only OEM Aurora, Model Motoring, or AML. No BSRT or other performance shoe. No modifications. Movement of shoe must not be restricted.

**Rear Axle:** Only OEM Aurora or Model Motoring. Max width of axle and mounted rims w/tires=1.125. No modifications. No spacers permitted. No Dune Buggy or Truck axles allowed.

**Front Axle:** Only OEM Aurora or Model Motoring. Max width of axle and mounted rims w/tires=1.125. No modifications. Spacers may be added to the front axle to limit the amount of side-to-side play. No Dune Buggy or Truck axles allowed.

**Rear Wheels:** Any readily available single or double flange rim is permitted. Wheels may be painted but not modified in any other way.

**Front Wheels:** Any readily available aftermarket single or double flange rim is permitted. Wheels may be painted but not modified in any other way.

**Front Tires:** Front tires must be at least .340 inches and no wider than 0.100000 inches. Any readily available slip on tire is allowed. Mounted tire must not fit through a hole less than 0.340 on OUTLAWS owned BSRT metal tire gauge. Tire width must not exceed the width between flanges or between flange and outside of wheel. No O-ring tires allowed. ALL TIRES MUST BE BLACK

**Rear Tires:** Any readily available aftermarket slip-on silicone rear tire with a minimum diameter of .350 and no wider than 0.100000 inches. Mounted tire must not fit through a hole less than 0.350 on OUTLAWS owned BSRT metal tire gauge. ALL TIRES MUST BE BLACK.

**Pick Up Springs:** Any stock or stock replacement pick-up shoe springs for T-Jets. No modifications.

**Guide pin:** Any stock or stock replacement guide pin. Guide pins may be glued and hole may be chamfered. No flag guide pins.

**Gearing:** Only OEM Aurora or Model Motoring. A 14-tooth armature pinion and 24-tooth idler and driven gears. Rear end gears must be 9-tooth drive pinion with 15-tooth crown gear. Gears may be polished to provide smooth mesh but cannot be drilled, tapered, or altered.

**Bodies:** Any injection molded plastic body. OEM wings, spoilers, and bumpers must be intact. Wheelbase of chassis must match body. For example, the Cheetah is a short wheelbase body. No modifications except for the following:

- Side and rear glass removal
- Lower portion of windshield may be trimmed for clearance
- Bodies may be lowered by trimming screw posts only.
- Interior maybe removed from top up convertibles and hardtop cars with an interior. Examples are Fairlanes, Galaxies, and Mustangs.

Any questions, ask the tech inspector(s) BEFORE the race.

**Track Power:** Standard voltage will be 20 volts. Voltage can be lowered at the track owner's discretion. Lowest allowable voltage is 18 volts.



## **Coupes**

The coupes division is a New England favorite. This division is based upon the early modifieds that would run at all the local short tracks all summer long. The rules for this division are quite liberal allowing almost any modification that will not affect the magnets ability to provide traction. Look for some of the best-looking cars in this division.

**Width:** The complete car must freely pass through a standard 1.3125 (1 and 5/16) HO tech block.

**Chassis and Gear Plate:** Any non-magna-traction chassis and gear plate from the following manufactures:

- Aurora ThunderJet, Wild Ones, Tuff Ones, AFX, X-Traction
- Johnny Lightning
- Auto World
- DASH

Weight pans are allowed

**Armature:** No restrictions.

**Motor Magnets:** *Any Aurora, DASH, AW/JL, BBT-Jets ceramic magnets or OS3 Black Dragon, White Dragon, Blue Dragon, and Red Dragon magnets.* Magnets may be shimmed with non-magnetic material.

**Brushes:** No restrictions.

**Pickup Shoes:** No restrictions.

**Rear Axle:** No restrictions.

**Front Axle:** No restrictions.

**Rear Wheels:** Rear wheel and tire must not pass through the .348" gauge hole on the Outlaws owned BSRT metal tire gauge.

**Front Wheels:** *Front wheel and tire must not pass through the .348" gauge hole on the Outlaws owned BSRT metal tire gauge. Legal examples are Tyco 440 X2 front wheels, AFX steelie and AFX turbine front wheels, and JW's HO Speed Parts part number JW F17-TG.*

**Tires:** Front tires must be minimum of 3/16 in width. Rear tires for the AFX and X-Traction chassis must be slip on silicone only. No restrictions for the DASH, Auto World, Johnny Lightning and Aurora chassis.

**Pick Up Springs:** No restrictions.

**Guide Pin:** No restrictions.

**Gearing:** No restrictions.

**Bodies:** Any NASCAR Modified that competed prior to and including 1975. Bodies can be hard body (injected molded or resin) or Lexan (vacuum molded) as long as the body is aesthetically acceptable and true to class as determined by majority vote of members present at that race. Body must have car number in 3 locations.

**Track Power:** Standard voltage will be 20 volts. Voltage can be lowered at the track owner's discretion. Lowest allowable voltage is 18 volts.

## **Magnatraction**

**Width:** The complete car must freely pass through a standard 1.3125 (1 and 5/16) HO tech block.

**Chassis:** AFX Magnatraction and the Johnny Lightning or Auto World X-traction Chassis are legal. No modifications except the small tabs under the ends of the rear magnet may be removed. See [Appendix B: Magnatraction Chassis Modification](#) for a picture.

**Armature:** Stock armature only. Minimum 14 ohm. No modifications.

**Motor Magnets:** Ceramic Aurora magnatraction or X-Traction magnets in their original position. Magnets may be shimmed using non-ferrous materials only.

**Brushes:** Stock or Stock Replacement brushes allowed. No substitutes such as springs. Brushes must be used. X-ing or scoring of brushes is allowed.

**Pickup Shoes:** Any stock replacement.

**Front and Rear Axles:** Any.

**Wheels and Tires:** Any tire and wheel combination. Slip on silicone tires only.

**Pick Up Springs:** Any stock replacement.

**Guide Pin:** Stock or Stock replacement

### **Gearing:**

- Top gear plate gears and pinion must be Only OEM Aurora or Johnny Lightning. A 14-tooth armature pinion and 24-tooth idler and driven gears. Rear end gears must be 14-tooth drive pinion
- Stock or Stock Replacement 15-tooth crown gear. Shims may be used to adjust mesh or crown gear.
- Gears may be polished to provide smooth mesh.
- Drive gear rivet may be replaced with JW's HO Speed part # X15 screw or similar (such as those in eyeglass repair kits) but cannot be drilled, tapered, or altered.

**Fairgrounds Bodies:** Any American manufacturer 2-door hardtop manufactured between 1953 and 1975. Bodies may be lowered. Glass bumpers and grills are not required. No Corvettes. Body must be a hard body (injection molded or resin).

**General rules for bodies listed below:** *Only injected molded bodies intended for A/FX, Johnny Lightning, or Auto World, chassis are allowed. No lightening or lowering of the body. No modification of wheel wells. Body appearance to represent an actual race car that competed in series listed below is allowed. Unaltered bodies will retain original glass, wings, bumpers and grills. The body mounts may be boxed in (See [Appendix C: Magnatraction "boxed in" body mount](#)). Body must weigh at least 3.5 grams.*

**NASCAR Bodies:** Body style must have been raced in NASCAR Grand National series. Body must have car number in 3 locations.

**IMSA Bodies:** IMSA and SCCA bodies from the 70s and 80s such as the Capri, Datsun 240Z and 510, BMW 320i, etc. Body must have car number in at least 2 places.

**Can-AM Bodies:** Open cockpit bodies from the late 60s and early 70s such as the McLaren, Porsche 910, Ferrari 612, etc. No closed cockpit bodies. Body must have car number in at least one place.

**Sports Prototype Bodies:** Closed cockpit bodies such as the Porsche 917, Ferrari 512, GT40, etc. Only injected molded bodies intended for A/FX, Johnny Lightning, or Auto World, chassis are allowed.

**Track Power:** Standard voltage will be 20 volts. Voltage can be lowered at the track owner's discretion. Lowest allowable voltage is 18 volts.

## **Limited Super Stock**

An east coast favorite. This chassis support's several body options to allow for some variety in body choice.

**Width:** Max width of axle and mounted rims w/ tires = 1.3125 (1 and 5/16) to be checked using a tech block.

**Chassis:** Only the Aurora, Model Motoring, Johnny Lightning/AW, and DASH T-Jet style chassis are legal. Idler gear post may be squished. ***Gear plate rails may be cut or sanded only for purposes of lowering the body and shall only be cut or sanded to the level of the top surface of the gear plate. Rails must remain entirely under the gear plate clip.*** No other modifications are allowed.

**Armature:** Stock armature only. Armature must match the manufactures chassis being used min 14 ohm. No modifications.

**Motor Magnets:** *Any Aurora (except Magnatraction), DASH, AW/JL, BBT-Jets or OS3 Black Dragon, White Dragon, Blue Dragon, and Red Dragon magnets* in their original position. Non-ferrous shims permitted.

**Brushes:** **Any carbon/copper flat top and bottom brushes or stock DASH or stock AW/JL motor brushes are allowed.** Brushes may be scored with one score line or an X. Brush Tensioners may be slightly "dimpled" to prevent brush spinning. ***No exaggerated deep cuts or crevices allowed on flat top and flat bottom brushes; this will be checked for at tech.***

**Pickup Shoes:** Stock or Stock Replacement. Ski shoes such as Magnatraction shoes or BSRT 502 shoes are not allowed.

**Front and Rear Axles:** Any.

**Wheels and Tires:** Any.

**Pick Up Springs:** Stock or stock replacement.

**Guide Pin:** Any stock or stock replacement guide pin. Guide pins may glued and hole may be chamfered.

**Gearing:** 14-tooth armature pinion, 24-tooth idler and driven gears. Rear end gears: Any rear pinion/crown gear combination (stock or stock replacement). OEM on all other gear plate parts. Gears may be polished to provide smooth mesh but cannot be drilled, tapered, or altered. A shim may be used on the idler gear of the JL/Auto World chassis.

**NASCAR / NASTRUCK Bodies:** Hard shell injection molded or resin cast NASCAR style 1990 to present. Must have front and rear glass. Wheels must not be visible when viewed from above. Body must be mounted with 2 screws. Tires must be fully visible when viewed from the side. Rocker panels must be intact. BRP NASCARZ are legal. Body must have car number in 3 locations.

**Trans-Am Bodies:** Hard shell injection molded or resin cast body that represents a make and model that competed in the Over 2liter classes from 1966 – 1972. Must have front and rear glass. Body must be mounted with 2 screws. Tires must be fully visible when viewed from the side. Rocker panels must be intact. Eligible cars include, but are not limited to, Camaros, Mustangs, Javelins, Cougars, Barracudas, and Darts. Body must have car number in 3 locations.

**Track Power:** Standard voltage will be 20 volts. Voltage can be lowered at the track owner's discretion. Lowest allowable voltage is 18 volts.

## **Grand National**

The intent of the class is to pay homage to the great racecars from the 1955-1975 NASCAR Grand National era while maintaining commonality of race classes with other prominent east coast slot car clubs.

### **Cars – General**

1. **Complete car must pass freely through a 1-1/8" tech block**
2. **All parts must meet "on market" status**
3. **Front "truck" axle hole must not be used in any way**
4. **The following items below are adjustments and modifications that are allowed. Items not mentioned are NOT allowed.**

### **Bodies**

1. **All bodies to specifically replicate 1955-75 NASCAR Grand National car/drivers' car as it was raced.**
2. **Bodies must be manufactured by either the process of casting or injection molding and be made of resin or plastic. The minimum weight with 2 body screws is 2.4 grams.**
3. **Bodies may be lowered and lightened**
4. **The interior portion may be removed from bodies that have a separate roof and windshield casting/molding with a molded-in interiors.**
5. **Body must be fastened securely to the chassis using two screws.**
6. **OEM wheelbase must be maintained and body posts cannot be moved**
7. **Windows must completely fill window opening in the front and rear. Windows must be fashioned out of injection molded plastic, resin or be vacuum formed and must fill the complete front and rear windshield cavities.**
8. **Wheel wells may be ground down for tire clearance only and must not distort the general appearance of the car.**

### **Chassis, Gearplate, Guide Pin, and Clamp**

1. **Stock Aurora copper chassis only**
2. **Axle and shaft holes may be peened or slightly enlarged for desired fit**
3. **Gearplate idler post may be expanded**
4. **No dimpling of brush springs**
5. **Stock style guide pin (one) only**
6. **Guide pin may be glued to chassis**
7. **Guide pin screw hole may be chamfered**
8. **Clamp may be bent for desired fit – No Cutting**

### **Pickup shoes and springs**

1. **Pick up shoes must be solid copper and manufactured by Aurora, Model Motoring, American Line, BSRT (model 504 only), Slottech or Wizzard. Ski shoes are not allowed.**
2. **Pick up shoe travel may be restricted by the following methods:**
3. **Bending of front "window"**
4. **Tape or shrink tubing on front "window"**
5. **Bending of rear hook**
6. **Any bending to relocate stock pickup shoe configuration is not permitted**
7. **Any stock style coil spring may be used**
8. **Pick up springs may be cut and/or stretched**

### **Magnets**

1. **Aurora T-Jet magnets only. Tuff Ones and A/FX smooth cut style magnets are NOT allowed**
2. **Factory paint only, black/black, black/black with white stripe, green/orange, or green/white only.**
3. **No painting or repainting of magnets**
4. **No reverse zapped magnets**
5. **Magnets may be shimmed by non-ferrous materials only**
6. **Magnets may not be sanded at all in this class**
7. **See [Appendix A: Magnet Clarification](#) for additional information.**

### **Armatures and Brushes**

1. ***Aurora Gray tip, minimum 16.0-ohm average armature only***
2. ***Armature may be balanced ONLY. No trueing.***
3. ***Commentator plate may be trued***
4. ***No rewinds or dewinds***
5. ***Copper/carbon flat brushes only***
6. ***Bottom of brushes may be grooved to restrict rotation***

### **Gears and Cluster Shaft**

1. ***Only stock T-Jet or commercially available stock replacement top gears are allowed***
2. ***All top gears must be brass, have stock number of teeth, and a minimum thickness of .046"***
3. ***Gears may be polished and/or lapped***
4. ***Nine tooth brass drive pinion only***
5. ***Stock style 15 tooth crown gear, may be trued to a minimum diameter of .300"***
6. ***No lightened or beveling of gears (including the crown gear)***
7. ***Cluster shaft must be solid metal, with a maximum diameter of .0650"***

### **Tires/Wheels/Axles**

1. The only front/rear wheel/tire combo permitted in the Outlaws Grand National class are the Mopar Xwide Stock .350" Black tires and the CNC Delrin rims for Mopar Mountain Tires from Balls Out Racing or the RT-220 rims and RT-225 tires from RT-HO. Links to the specific parts on the website are:
  - a. <http://ballsoutho.webs.com/apps/webstore/products/show/2553794>
  - b. <http://rt-ho.com/wheels.html>
2. All tires must be equal to or greater than 0.348" diameter and a maximum width of 0.225"
3. Recoating of the tires is not allowed; this will be looked at carefully during pre-tech.
4. Spacers or springs shall be kept on the outer side of the chassis and spacers must be plastic, copper, aluminum, brass, or steel. (Outside diameter cannot exceed 0.125 +/- .005)
5. No wheel weights or hubcaps of any kind allowed
6. Axles shall not exceed 1-1/8" in length. Any axle may be used.
7. All four tires shall simultaneously touch the test track in the static position.
8. Lateral movement of the front tire/axle assembly shall not exceed 1/32" (.03")

### **Driver/Car Selection**

1. There will be no driver reservation list. At each race, driver/car combo will be determined as people sign in. If someone signs in before you with the same body, you will need to switch to a different body.

### **Track Power**

1. Standard voltage will be 20 volts.
2. Voltage can be lowered at the track owner's discretion.
3. Lowest allowable voltage is 18 volts.

No "one of" Parts allowed on the cars.

**A Final Rule: If anything is not specifically stated or addressed in the above rules it is NOT permitted.** If you are unsure of how a rule might apply to you and it's "spirit and intent" check with tech inspectors prior to the race.

## **Super Stock (SS)**

This is the East Coast version of the famous Fray cars that are popular on the West Coast. This is a highly competitive division featuring many of the country's best builders and racers. The East Coast HO Outlaws Club will maintain a small stable of competitive cars for members to use at any event that runs the SS class.

### **Complete Car Regulations**

1. The complete car must weigh at or between 19.0 grams and 24.0 grams.
2. The complete car must freely pass through a standard 1.3125 (1 and 5/16) HO tech block.

### **Body Regulations**

1. Body: The body must be a copy of a 1:1 car and concept cars.
2. Bodies must be manufactured by either the process of casting or injection molding and be made of resin or plastic. No feather-light resin allowed.
3. Bodies must be originally manufactured with the intention of being mounted with the use of two (2) screws via two (2) body-mounting posts on a/an: Aurora Model Motoring (which includes: Vibrator, Thunder Jet, Wild Ones, Tough Ones and Xlerators), Bachmann, Faller, Model Motoring Thunder Plus, Marx, Eldon or Tyco S series HO chassis.
4. Bodies with cast-in handling pans or exaggerated details - such as unrealistic or inappropriate hood scoops, oversized windows, side pipes, sloped sides, or snow plow noses - are not allowed.
5. No Indy style Formula 1 or Formula style open-wheel bodies will be allowed.
6. No ballast or fillers, other than color pigment, are allowed in the plastic or resin.
7. Maximum overall body width is 1.200. Accordingly, the body must pass through our 1.2 body-tech device. The maximum thickness of the lower portion of the body, including items such as the front end, rear end, fender flares, and running boards must not exceed 0.125.
8. With the body mounted securely to the chassis and viewed from above, the body must cover the chassis except through windows and vents. Unrealistic overly large windows and vents are not allowed.
9. With the body mounted securely to the rolling chassis and when viewed from the rear window opening, the upper edge of the top-plate, minus rails, cannot be above the top of the body as measured at the rear window opening.
10. Bodies must be fitted with all of the manufacturers original or exact-replica bumpers, heads, rollover bars, etc. in their stock locations.
11. Cracked or broken body-mounting posts may be repaired or replaced with the use of glue and/or a plastic sleeve around the original post or a plastic rod/tube in place of the broken post.
12. Other than the plastic post reinforcements, stated in Body Rule 11, no additional weight may be added to the body.
13. The body may be lowered and lightened by removing material through the process of grinding or scraping as long as Body Rule 9 is not violated. Bodies cannot be heated or reshaped from the original cast of the body.
14. Bodies that have a separate roof and windshield casting/molding, and have molded-in interiors (also known as Hardtops, e.g. Aurora's '65 Mustang), may completely remove the interior portion of the body.
15. Front and rear wheel wells may be opened up for tire wheel well clearance. This opening may be no larger than a 1/8inch drill bit (.125") around the entire wheel well and tire.
16. Wheel wells must not be modified in such a way as to allow the use of any other wheelbase than that which was originally intended by the manufacturer of that body.
17. Any mounting screw may be used. Non-magnetic screws are recommended so that a loose screw will not be picked up by a passing car, thus causing damage to the car and/or the track.
18. Both front and rear screws must be used and must secure the body to the chassis at all times.
19. The front windshield must be plastic or resin, clear or painted, may be glued in place or molded in, and must fill the frame. Tape windshields are not allowed. Side and/or rear windows may be removed. Rear windshields are optional, but must adhere to this same rule if used. Windshields made from Testor's Window maker are not allowed.

### Thunder Jet Rolling Chassis Assembly Regulations

1. Only original Aurora Thunder Jet chassis assemblies with non-plated copper electrical components are allowed, including silver color solid rivets, after market rivets are not allowed. Commutator brush springs may be bent to alter brush tension. Pickup shoe hanger plates may be bent.
2. The rolling chassis axle, armature, and drive pinion shaft holes may be opened up slightly for increased clearance.
3. The Truck hole cannot be utilized in any way.
4. The rolling chassis assembly must not be fitted with bushings.
5. The chassis may be trimmed slightly (no more than .010) to allow for crown gear tooth clearance.
6. Gear plate rails may be cut or sanded only for purposes of lowering the body, and shall only be cut or sanded to the level of the top surface of the gear plate. Rails must remain entirely under the gear plate clip.
7. Brush springs may be adjusted only in their original configuration to change the tension on the brushes. They may be dimpled or a corner may be altered only to prevent the brush from spinning.
8. Guide pins shall be original design, must use a full guide pin, guide pin hole may be countersunk for body screw. No metal guide pins.
9. Guide pins may be glued to chassis.
10. Guide pins may be shortened in length to accommodate different tracks.
11. The gear plate clamp may be bent (but not cut or otherwise altered) to improve fitment.
12. Squishing of the idler post is permitted.
13. Hollow cluster shafts are not allowed and must be magnetic.

### Armatures

1. **Only original Aurora T-Jet gray tipped two lamination armatures or Dash Motorsports two or three lamination armatures may be used. Armatures must have their original commutator and all of their original unmodified windings. The armature may be balanced and trued. A shim may be used between the armature and the top plate to prevent the motor windings from contacting the top plate.**
2. Each armature pole is to be measured across two separate Commutator segments. The AVERAGE of all three poles must be 16 ohms or greater. i.e.: Pole A measures @ 15.8 ohms, Pole B measures @ 16.2 ohms and Pole C measures @ 16.0 ohms. This armature is LEGAL. All measurements are to be taken at the current available room (ambient) air temperature. The warming of either the Commutator or the armature is not allowed before/during measuring. (The combined total ohm reading of all three armature poles must equal or exceed 48 ohms.)
3. Any flat top and bottom carbon/copper motor brushes are allowed. Brushes may be scored with one score line or an X. Brush Tensioners may be slightly "dimpled" to prevent brush spinning. No exaggerated deep cuts or crevices allowed; this will be checked for at tech.
4. **No Hand Wound or rewound or de-wound armatures allowed.** The tech committee will have privy to comparative arms and other hand wound detecting tools to make an intelligent decision on a case-by-case basis.

### Gears

1. Only stock T-Jet or commercially available stock replacement 14 tooth brass gears with a minimum thickness of .046" are allowed.
2. Armature pinion gear must be 14 teeth. Idler and driven gears must be 24 teeth. Drive pinion gear must be 9, 12, or 14 teeth
3. Only stock T-Jet or commercially available stock replacement non-metallic 15 tooth crown gears are allowed.
  - a. 4 gear specialty chassis crown gears are not allowed.
  - b. The Crown gear minimum diameter will be no less than .300
  - c. No Chamfering or beveling of the crown gear, must maintain 90 degree angle as originally produced.
  - d. The crown gear "boss" may be sanded or trimmed to accommodate different gear ratios.
  - e. The crown gear may be shimmed inside and/or outside the chassis.
4. Gears may be soldered or glued to their respective shafts.
5. Only metal driven-gear shafts may be used. The driven-gear shaft must not exceed .065" in diameter.
6. Gear-tooth friction surfaces can only be de-burred by polishing, filing, or sanding.
7. Gears must not be chamfered, lightened, or relieved.
8. Shims between the gears and the top plate are not allowed.

### Magnets

1. **Any Aurora (except Magnatraction), DASH, AW/JL, BBT-Jets** magnets may be used. The magnets may be sanded to fit the chassis. The distance between the magnets must be a minimum of .700".
  - a. Inside surface of magnets may not be sanded.
2. Magnets shall not be affixed to the chassis by any means.
3. All magnets should have original factory paint. In the event of paint shortage on the magnets, they will be measured for strength against like magnets by the designated measuring tool for the event.
4. Painting of magnets shall not be allowed.
5. Magnet shims may be used as long as they are made of non-ferrous material. No shims are allowed either under or on top of the magnets.
6. No "reversed zapped" magnets

### Pickup Shoes and springs

1. Pick up shoes and springs shall be solid copper and manufactured by Aurora, Model Motoring, American Line, BSRT (model 504 only) Slot Tech or Wizzard, Champ and Dr. Oogan springs are legal. Ski shoes are not allowed.
2. Pick up shoe springs may be cut (coils removed) to desired length.
3. Pick up shoe springs may be stretched to desired length.
4. The "step" in the pick-up shoe must remain intact and be unaltered, except that only the first bend in the step, (Bend #2), may be changed slightly so that proper "pick-up shoe" to "rail" contact can be achieved. No attempts to "flatten" the "step" are allowed. The area between (Bend #1) and (Bend #2) may be "flattened" to achieve better contact with the "rails"; however, (Bend #1) must remain as stock. (Bend # 1) may be adjusted back toward the chassis to allow the shoe to hang on the chassis nipple. The front vertical slotted portion of the pick-up shoe may be bent to limit shoe travel. The rear hook portion of the pick-up shoe may be bent to limit shoe travel and adjust shoe tension. The chassis' copper pickup retainer may be bent slightly to improve electrical contact.
5. Pick up shoe travel may only be adjusted by:
  - a. bending the front "window" portion of the shoe that hooks to the front of the chassis
  - b. bending the rear hook which attaches to the chassis' copper hardware
  - c. bending the hangers on the chassis into which the rear hook of the shoe connects
  - d. adding heat shrinkable tubing to the top of the front window.
6. Shims may be used between the pickup shoe spring and chassis.
7. The window of the shoe cannot be part of the contact patch.

### Tires/Wheels/Axles

1. Rear wheels may not be made of Brass or solid Delrin.
2. No axle weights, wheel weights or hub caps allowed on rear axle or inside the wheels.
  - a. Note: A small delrin retainer will be allowed on the outsides of rear axle for the purpose of adjusting crown gear mesh rear pinion. The diameter of the retainer must not exceed 0.125" with a thickness not to exceed 0.070".
3. Spacers shall be made only of plastic, copper, aluminum, brass, or steel. (Outside diameter cannot exceed 0.125).
4. All four tires shall simultaneously touch the test track in the static position.
5. Lateral movement of the front tire/axle assembly shall not exceed 1/32" (.03")
6. Spacers may be used on the rear axle both inside and outside the chassis.
7. The front and rear axle diameter must not exceed .065
8. All on market weighted Front Ends are legal, i.e. Zommin Motorsports, RTHO, Wizzard OS3, and BRP.
9. No mixing and matching of front-end parts from different manufacturers. This does not apply to tires and o-rings.

### Track Power

1. Standard voltage will be 20 volts.
2. Voltage can be lowered at the track owner's discretion.
3. Lowest allowable voltage is 18 volts.

No "one of" parts allowed on the cars.

**A Final Rule: If anything is not specifically stated or addressed in the above rules it is NOT permitted.**



## **Indy/Jalopy**

Indy style open wheel cars have been a favorite among racers since Aurora 1st made them in 1963. This style open wheel chassis is used for both Indy and Jalopy classes.

### **General**

1. **Only stock T-Jet or commercially available stock replacement top gears are allowed**
2. **All top gears must be brass, have stock number of teeth, and a minimum thickness of .046"**
3. **Gears may be polished and/or lapped**
4. **Nine tooth brass drive pinion only**
5. **Stock style 15 tooth crown gear, may be trued to a minimum diameter of .300"**
6. **No lightened or beveling of gears (including the crown gear)**

### **Indy Bodies**

1. **Must be a replica of a 1:1 Indy or GP style car**
2. **Must be injected molded/casting of plastic or resin with all bumpers windscreen and must have a driver**
3. **May be trimmed, lowered and lightened**
4. **Minimum body weight of 3.0 grams with the 2 mounting screws**
5. **Must be mounted to the chassis using 2 mounting screws**
6. **NO exaggerated wheel well openings**
7. **Stock wheel base must be maintained for body**
8. **No lead, brass, etc. body parts**

### **Jalopy Bodies**

1. Bodies shall be injection molded plastic when using original Aurora, Atlas, Tyco, etc. or resin cast (no feather light resin allowed) based on dirt track cars.
2. Body should have that old timey look.

### **Chassis, Gearplate, Guidepin and Clamp**

1. Stock Aurora copper chassis only
2. Axle and shaft holes may be peened or slightly enlarged for desired fit
3. Gearplate idler post may be expanded
4. No dimpling of brush springs
5. Stock style guide pin (one) only
6. Guide pin may be glued to chassis
7. Guide pin screw hole may be chamfered
8. Clamp may be bent for desired fit – No cutting

### **Pickup shoes and springs**

1. **Solid copper Aurora T-Jet, Model Motoring, AML, BSRT 504, Slottech, or Wizzard shoes ONLY. No ski type shoes.**
2. **Pick up shoe travel may be restricted by the following methods:**
  - a. **Bending of front "window"**
  - b. **Tape or shrink tubing on front "window"**
  - c. **Bending of rear hook**
3. **Any bending to relocate stock pick up shoe configuration is not permitted**
4. **Any stock style coil spring may be used**
5. **Pick up springs may be cut and/or stretched**

### **Magnets**

1. **Aurora T-Jet magnets only. Tuff Ones and A/FX smooth cut style magnets are NOT allowed**
2. **Factory paint only, black/black, black/black with white stripe, green/orange, or green/white only.**
3. **No painting or repainting of magnets**
4. **No reverse zapped magnets**
5. **Magnets may be shimmed by non-ferrous materials only**
6. Magnets must not be sanded at all in this class.
7. See Appendix A: Magnet Clarification for additional information.

### **Armatures and Brushes**

1. **Aurora Gray tip, minimum 16.0-ohm average armature only**
2. **Armature may be balanced ONLY. No trueing.**
3. **Commentator plate may be trued**
4. **No rewinds or dewinds**
5. **Copper/carbon flat brushes ONLY**
6. **Bottom of brush may be grooved to restrict rotation**
7. Shims between the armature and top plate are not allowed.

### **Gears and Cluster Shaft**

1. **Only stock T-Jet or commercially available stock replacement top gears are allowed**
2. **All top gears must be brass, have stock number of teeth, and a minimum thickness of .046"**
3. **Gears may be polished and/or lapped**
4. **Nine tooth brass drive pinion only**
5. **Stock style 15 tooth crown gear, may be trued to a minimum diameter of .300"**
6. **No lightened or beveling of gears (including the crown gear)**
7. **Cluster shaft must be solid metal, with a maximum diameter of .0650"**

### **Front Wheels, Tires, and Axles**

1. **Minimum tire diameter is .420", max width .175"**
2. **Any commercially available plastic single or double-flanged wheels allowed**
3. **Tires may be glued to wheels**
4. **Axle spacers may be used**
5. **Lateral movement no more than .030"**
6. **No weights or oversized spacers allowed (.125" max diameter)**
7. **Front wheel, tire, axle assembly must be used with the intent in which it was designed**
8. **Axle may be stock, drill blank, or hollow style only, and a maximum diameter .0650"**

### **Rear Wheels, Tires, and Axles**

1. **Minimum tire diameter is .460" maximum width of .175"**
2. **Slip-on style solid silicone tires only**
3. **Tires may be glued to wheels**
4. **No over coating or recoating of tires**
5. **Any commercially available plastic single or double-flanged wheels allowed**
6. **Spacers may be used on outside of chassis only.**
7. **No oversized spacers or weights allowed (.125" max diameter)**
8. **Axles may be stock or drill blank style only, and a maximum diameter .0650"**

### **Track Power**

1. Standard voltage will be 20 volts.
2. Voltage can be lowered at the track owner's discretion.
3. Lowest allowable voltage is 18 volts.

No "one of" parts allowed on the cars.

**A Final Rule:** If anything is not specifically stated or addressed in the above rules it is NOT permitted.

## **Tour Modified Class**

Modifieds are NASCAR's oldest division of racecars. It was established to set up a regional touring format for the popular style of race cars that were the featured attraction at many tracks in the North East. This class is intended to represent the current iteration of this class. This class is based on the BSRT G-Jet®. The BSRT Part Number 915F is a complete car minus body that is legal in this class.

### **Chassis**

1. Cars eligible to compete in this class must be the BSRT G-Jet®.
2. The chassis must be a stock BSRT G3® or G3® R version. The chassis cannot be modified except to add body mounts and the front axle holes may be reamed to .052". Body mounts must be located in the stock locations.
3. The motor magnets must be BSRT G3® Ceramic or BSRT G-Force™ Ceramic-Grade material and cannot be cut. Magnets must remain in their stock position.
4. Armature must be a stock BSRT G-Jet®, narrow gap design, and be a minimum of 9 ohms. BSRT G-Jet® 9 ohm Hot Stock™ armature may be substituted for the stock unit.
5. Armature bushings must be stock or BSRT stock replacement (no ball bearings allowed). Bushings may be reamed, chamfered, and polished.
6. All electrical system parts must be stock or BSRT stock replacement. Helper springs are not allowed.
7. G-Jet® front axle, G-Jet® front wheels (part #877) and G3 front tires (part #950) must be used with a minimum tire diameter of 0.350". The front tire, rim, and axle must be installed using the front, long wheelbase hole.
8. Rear tires must be BSRT G-Jet® slip-on silicone tire part # 880 on part # 879 Double Flange rims with a minimum diameter of .450" on a stock or BSRT stock replacement rear axle.
9. Front and rear rims cannot be drilled or lightened.
10. Gears must be stock or BSRT stock replacement. Gears may not be lightened. Axle spacers and/or gear  
11. Spacer may be used to aid with gear mesh.
  - a. Pinion gear must be 7 tooth
  - b. Crown gear must be 21 tooth or 22 tooth.
12. The guide pin must be stock or BSRT stock replacement in the stock position.
13. Glues/adhesives are not allowed on the chassis except to attach the body mounting system and retain the guide pin and weight screw.
14. BSRT G-Jet® marked handling weights must be used. Weights must be used in their stock location. Front weight must be the G-Jet® Indy/Formula 1 specific handling plate (part #887).

### **Body**

1. Body must represent a modern era Tour Modified car
2. Body can be injected molded, vacuum molded, or cast of Lexan, Resin or plastic. No paper/cardboard/cardstock bodies allowed.

### **Track Power**

1. Standard voltage will be 12 volts.
2. Voltage can be raised at the track owner's discretion.
3. Highest allowable voltage is 14 volts.

## Appendix

### **Appendix A: Magnet Clarification**

Pictures and Descriptions of magnets can be found on the Slot car Monsters website:

<http://slotmonsters.com/slot-car-pancake-motor-magnets.ashx>

#### **Magnet Clarification Pictures**

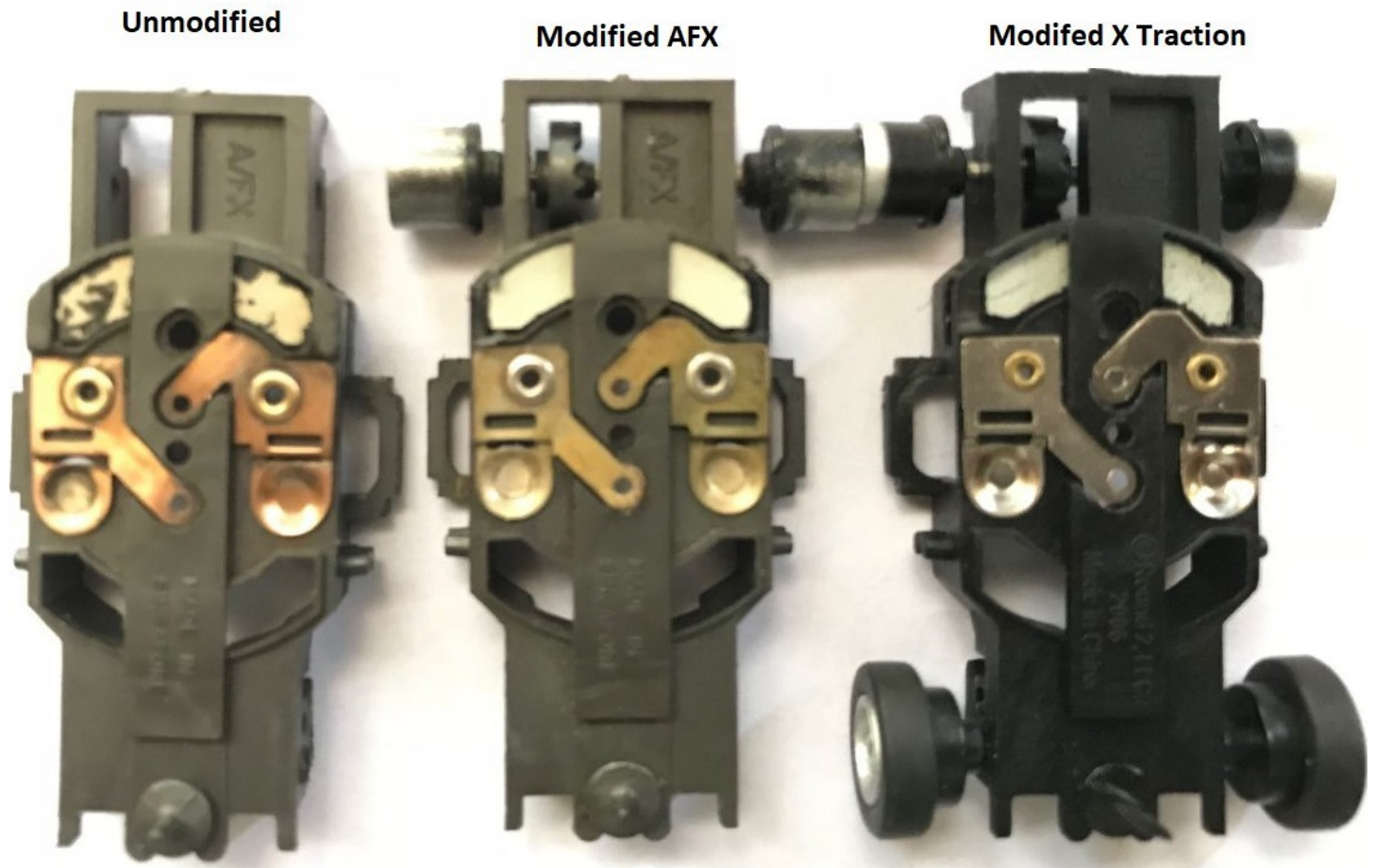
Stock Aurora Magnet Bottom:



AFX Magnet Bottom:



**Appendix B: Magnatraction Chassis Modification**



**Appendix C: Magnatraction "boxed in" body mount**



**Unmodified**

**Boxed In**