

East Coast

Outlaws

**HO SLOT CAR
RACING CLUB**



2023 - 2024

Official Rulebook

Effective September 1, 2023

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Version Log

Version	Modification	Change Identification	Effective Date
1.0	Created from 2022 – 2023 Rules with modifications from Rules Meeting	<i>Changes are in Bold Italicized Text.</i>	9/1/2023
1.1	Clarified rules to exclude the DASH Blizzard Chassis	<i><u>Changes are in Bold Italicized Underlined Text</u></i>	11/19/2023

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. ***The club recognizes that the cars and associated parts we use to race can be difficult or expensive to acquire. As a club, we will strive to help all members obtain cars, parts, etc. As noted above, no member should feel they cannot participate due lack of cars, etc.***

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 exception 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. 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 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 the 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 proceedings at a race event. The 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. The 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 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) and Facebook page. The Communications Directors will be responsible for promoting the Club online through web forums, etc. The Communication Director will coordinate the Best Appearing Award at each race.

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.

2023 – 2024 Officers

- Directors: Dave Lockwood
- Treasurer: Jim Colligan
- Communications Director: Jim Colligan
- Head Tech Inspector: Dave Lockwood
- Tech Inspector: Dave Kaiser (Flash)
- Tech Inspector: **Greg Wisniewski**
- Alternate Tech: Tom Gray, Terry Ayer, **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). 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 through 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.

Concours Rules (Best Appearing)

1. There will be one concourse winner per event
2. ***Only bodies that adhere to all body rules may participate in Concours***
3. Every racer who is participating at an event is eligible to vote
4. Once a body wins a concours award it cannot be entered again for the remainder of that season.
5. 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 (We will make every effort to adhere to the following schedule):
 - a. Doors Open at 7:30 AM. When event is at LenJet, members are encouraged to arrive at 7:30 to help with uncovering and wiping down the tracks to be used and to setup the computers for the day.
 - b. Track Power on at 8:00 if all tracks are ready to be raced on
 - c. Practice is 8:00 to 9:45
 - d. Tech Inspections is 9:30 to 9:45. All cars must be in tech by 9:30
 - e. Concourse voting is 9:30 to 9:45
 - f. Driver's meeting is 9:45 to 10:00
 - g. 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. There will be a 90 second autorotation time in between heats. This can be overridden by the race director's discretion.
 - d. 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
 - e. **Races on road courses will be marshaled:**
 - 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.
 - f. **Races on Ovals will track offs**
 - i. **Race format will track offs (deslot, crash, etc.).**
 - ii. **Any crash, deslot, etc. will trigger a Track Call**
 - iii. **Any driver who's car is not in the slot will be charged with an off. After 4 offs in a heat, the driver will sit out the rest of that heat and resume racing in the same location at the start of the following heat.**
 - iv. **Offs will be tracked during the race and a lap will be deducted from the driver's total laps for each off.**
4. **Post Race tech inspection will be conducted by at least 2 tech inspectors. If there is a need to validate a conclusion by the tech inspectors, the two tech inspectors, plus a third inspector or club official, will vote to decide outcome.**

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 if 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.
8. ***The default voltage will be 20 volts. Voltage can be lowered at the track owner's discretion. The lowest allowable voltage is 18 volts.***

Hobby Stocks

Chassis and Gear plate: Must be the stock Aurora or Model Motoring Thunder Jet Copper. Idler gear post may be squished. Electrical components may be replaced with copper parts only. 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 plastic rim is permitted. Wheels may be painted but not modified in any other way.

Front Wheels: Any readily available aftermarket single or double flange plastic 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 **except Fray style body which are categorized by their lowered and extended roofline, exaggerated window openings.** 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 **and attachment points on the body** 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.

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, A/FX
- Johnny Lightning
- Auto World
- DASH **T-DASH**
- Wizzard WizJet
- Weight pans are allowed.
- Electrical components may be replaced with copper or plated parts.

Armature: No restrictions.

Motor Magnets: Any Aurora, DASH Ceramic, AW/JL, BBT-Jets ceramic magnets or OS3 Black Dragon, White Dragon, **Gray 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 rear tire 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) if 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.

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 Aurora Magnatraction or JL/AW armature only. Minimum 14 ohm. No modifications. Either armature may be used in either chassis. ***Spacers may be used between the top of the armature and bottom of the topplate.***

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

Pick Up Springs: Any stock replacement.

Front and Rear Axles: Any. ***Spacers may be used as desired.***

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

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.
- **Any** 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 screw (such as those in eyeglass repair kits) or post and may be sleeved. Spacers may be used on top of cluster gear. Cluster gear may be redrilled to center hole.

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. Body must have car number in at least 2 places.

Limited Super Stock

An east coast favorite. This chassis supports 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-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. Electrical components may be replaced with copper or plated parts that match the manufacturers original components. 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 Ceramic, AW/JL, BBT-Jets or OS3 Black Dragon, White Dragon, Blue Dragon, and Red Dragon magnets in their original position. Non-magnetic 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.

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. ***It is desired that all*** bodies replicate a 1955-75 NASCAR Grand National car (Richard Petty #43 for example) as it was raced. ***Cars meeting this criteria will be eligible for Concours. Cars that represent a make and model that was raced but do not replicate a specific car will be allowed to race, but will not be eligible for Concours***
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, Gear plate, Guide Pin, and Clamp

1. Stock Aurora copper chassis only. Electrical components may be replaced with copper parts only.
2. Axle and shaft holes may be peened or slightly enlarged for desired fit
3. Gear plate 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. Pickup 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. Pickup 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. Pickup springs may be cut and/or stretched

Magnets

1. **Aurora T-Jet or OS3 Red Dragon magnets only. Tuff Ones, A/FX smooth cut style magnets and any other magnets are NOT allowed**
2. Factory paint only
 - a **Aurora magnets must be black, black with white stripe, green, orange, or white only**
 - b **OS3 Red Dragon magnets must gray with one red dot or gray with one red dot and one white dot**
3. No painting or repainting of magnets
4. No reverse zapped magnets
5. Magnets may be shimmed by non-magnetic 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 0.125"
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")

No "one of" Parts allowed on the chassis.

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, injection molding or **Additive Manufacturing** 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 snowplow 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 if 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 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 always secure the body to the chassis.
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.

Rolling Chassis Assembly Regulations

1. Only original Aurora Thunder Jet chassis and Wizzard WizJet 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. Electrical components may be replaced with copper parts only.
2. The rolling chassis axle, armature, and drive pinion shaft holes may be opened 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, DASH Motorsports two or three lamination armatures, **or OS3 Typhoon / Tornado armatures may be used.** Armatures must have their original commutator and all 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 Ceramic, 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 if they are made of non-magnetic 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.

E-Fray

1. Same rules apply as the Super Stock (SS) car with the following changes:

- Drive pinion gear must be a 9-tooth
- Dash **T-DASH** chassis/gearplate allowed.
- Chassis and gearplate manufacturer must match
- Rear slip-on style wheels and tires ONLY
- Rear wheels must be plastic. Single or Double flange
- Overcoating and/or recoating of rear tires is not permitted
- Front wheel tire assemblies must be concentric style only (No hanging weight style). Example of, but not limited to:

Manufacturer	Part Number
One Stop Slot Shop (OS3)	OS3 Fronts
RT-HO	RT-HO-240, RT-240D, RT-245, RT-250, RT-255, RT-255D, RT-185, RT-185D
Wizzard	FR254, FR254A, FR254B

- Minimum front tire diameter of .300"

2. For some races, a specific body type may be required. The choices are:

- 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.

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 wheelbase 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
9. Electrical components may be replaced with copper parts only.

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-magnetic 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.

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

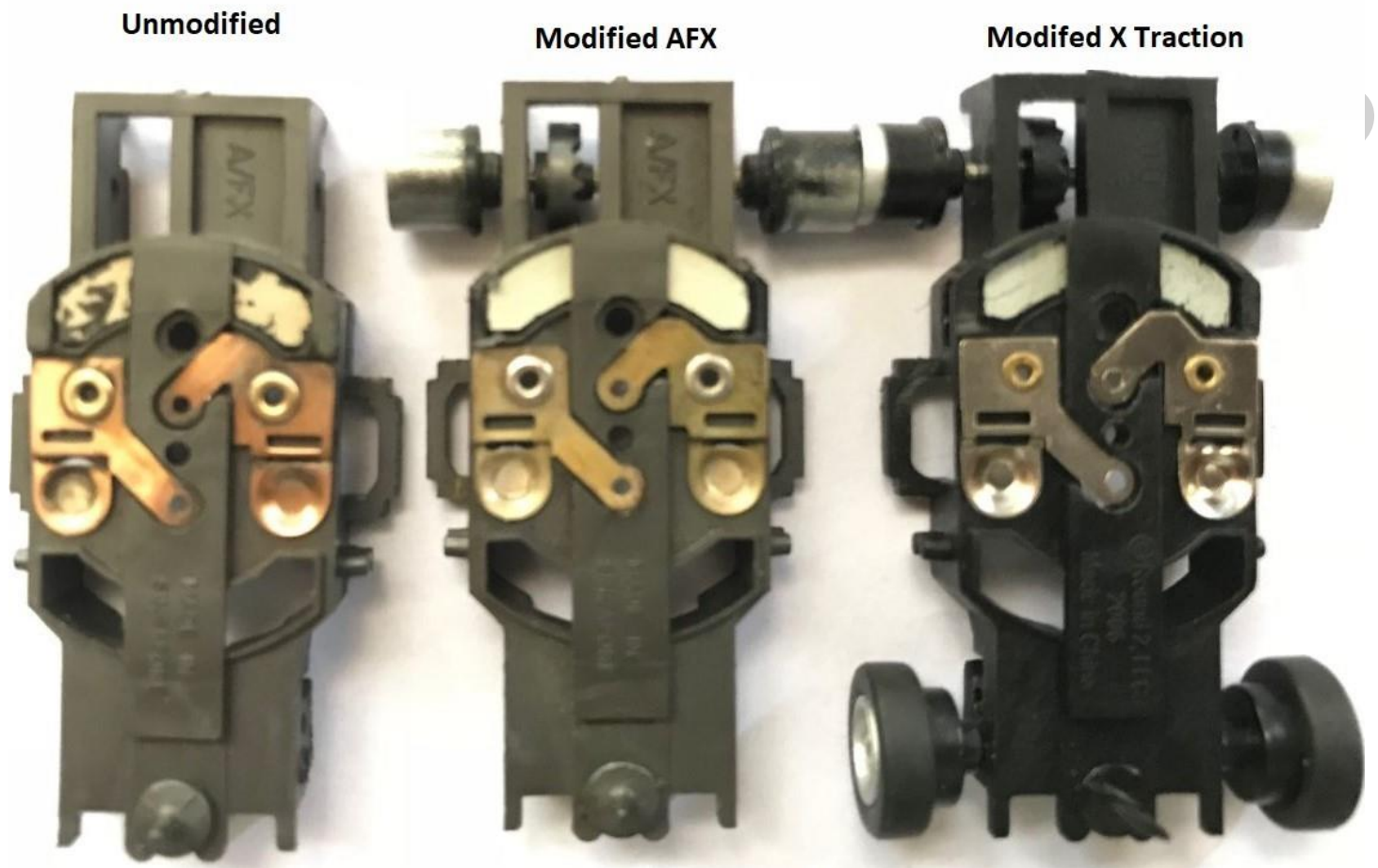
Stock Aurora Magnet Bottom:



AFX Magnet Bottom:



Appendix B: Magnatraction Chassis Modification



Appendix C: Magnatraction "boxed in" body mount



Unmodified

Boxed In