Da Rules!

General Rules

1) For each class of the race, driver may tech in one car only. Sharing of cars is not permitted.
2) All cars must remain in the tech area until the heat in which you are on deck for starts.
3) All racers must corner marshal at their assigned times.
4) Track calls are made by the marshals, not the drivers.
5) Drivers may not marshal any car. Drivers may pick up and place their car down in front of them for maintenance, etc. under green. Any driver marshalling a car or impeding another car while pitting their car will be penalized one lap per infraction.
6) CONTROLLERS:
    a. 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 and does not interfere with the operation of another driver's car or controller.
    b. Adjustable sensitivity is allowed.
    c. Hooking up of brake wire (red) and adjustable brakes is allowed for all classes
7) Nostalgia, Indy, E-Fray, and Fray SS will be three minutes round robin style, IROC will be two minutes round robin style.
8) All classes will be run at 20 volts.
9) ANY concerns or questions of car rules, general rules, or race procedure, PLEASE ASK BEFORE THE RACING START.

Nostalgia

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.

Body

1) Must be a replica of a 1:1 car
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. Must have all bumpers and a full windshield
3) May be trimmed, lowered, and lightened
4) Minimum body weight of 2.4 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

Chassis, Gearplate, Guide Pin and Clamp

1) Stock Aurora copper chassis only
2) Electrical components may be replaced with copper parts only
3) Chassis may be blueprinted if original chassis dimensions, axle hole location, cluster shaft location, and armature shaft location are not altered
4) Axle and shaft holes may be peened or slightly enlarged for desired fit
5) Gearplate idler post may be expanded
6) No dimpling of brush springs
7) Stock style guide pin (one) only
8) Guide pin may be glued to chassis
9) Guide pin screw hole may be chamfered
10) Clamp may be bent for desired fit – No Cutting

Pick up Shoes and Springs

1) Solid copper Aurora T-Jet, Model Motoring, AML shoes only
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 pickup 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 with white stripe, green, orange, and white only. Any combination of stock magnets is allowed if rules 3 and 4 below are adhered to.
3) No painting or repainting of magnets
4) No reverse zapped magnets
5) Magnets may be shimmed by non-ferrous materials only

Armature and Brushes

1) Aurora Gray tip, minimum 16.0-ohm average armature only
2) Armature may be balanced ONLY. No trueing.
3) Commutator 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”

Front Wheels, Tires, Weights, and Axle

1) Any commercially available front end designed for a width of 1.125” may be used
2) Minimum tire diameter is .350”, max width .120”
3) Front assembly must be used in the intent in which it is designed
4) No mixing/matching of front assemblies
5) Lateral movement no more than .030”
6) Tires may be glued to wheels
7) No oversized front axle spacers (.125” max diameter)
8) Axles may be stock, drill blank, or hollow style, and a maximum diameter .0650”

Rear Wheels, Tires & Axles

1) Minimum tire diameter is .350” maximum width of .120”
2) Slip-on style solid silicone tires only
3) No over coating or recoating of tires
4) Tires may be glued to wheels
5) Any commercially available single or double-flanged wheels, screw-on, press-on variety may be used
6) Spacers may be used on outside of chassis only.
7) NO oversized spacers (.125” max diameter)
8) Axles may be stock, drill blank, or hollow style only, and a maximum diameter .0650”

INDY

General

1) Complete car must pass freely through a 1-5/16" tech block
2) All parts must meet "on market" status
3) Only "truck" axle hole may be used
4) The following items below are adjustments and modifications that are allowed. Items not mentioned are NOT allowed.

Body

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

Chassis, Gearplate, Guide Pin and Clamp

1) Stock Aurora copper chassis only
2) Electrical components may be replaced with copper parts only
3) Chassis may be blueprinted if original chassis dimensions, axle hole location, cluster shaft location, and armature shaft location are not altered
4) Axle and shaft holes may be peened or slightly enlarged for desired fit
5) Gearplate idler post may be expanded
6) No dimpling of brush springs
7) Stock style guide pin (one) only
8) Guide pin may be glued to chassis
9) Guide pin screw hole may be chamfered
10) Clamp may be bent for desired fit – No cutting

Pick up 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 with white stripe, green, orange, and white only. Any combination of stock magnets is allowed as long as rules 3 and 4 below are adhered to.
3) No painting or repainting of magnets
4) No reverse zapped magnets
5) Magnets may be shimmed by non-ferrous materials only

Armature and Brushes

1) Aurora Gray tip, minimum 16.0-ohm average armature only
2) Armature may be balanced ONLY. No trueing.
3) Commutator 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

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 Axle

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 & 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”

FRAY SS

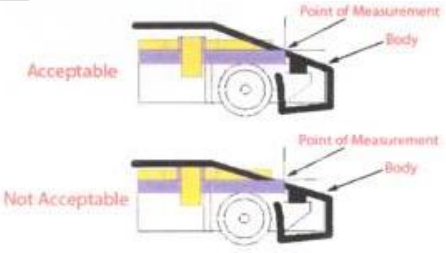
Courtesy of the Fray in Ferndale: http://thefrayinferndale.com/rules/
Approved Parts List Link: http://thefrayinferndale.com/pdf/Approved-Parts-List.pdf

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 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 ThunderPlus, 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.
8) 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.
9) 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.



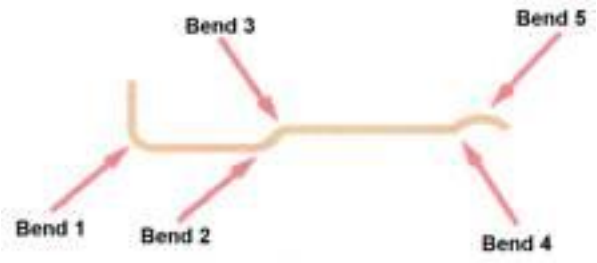
10) With the body mounted securely to the rolling chassis and when viewed from the side and/or the rear of the body, the upper edge of the top-plate, minus rails, cannot be above the rear window frame as measured at the rear of the topplate. (i.e. horizontal top of the gear plate (base) cannot protrude above the rear window opening). Put another way: The lower rear window opening must be equal to or higher than the gear plate plane.
11) Bodies must be fitted with all of the manufacturer's original or exact-replica bumpers, heads, rollover bars, etc. in their stock locations.
12) Cracked or broken body mounting posts may be repaired or 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.
13) Other than the plastic post reinforcements, stated in Body Rule 12, no additional weight may be added to the body.
14) 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.
15) 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.
16) 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.

17) 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.
18) Any body mounting screws may be used. Nonmagnetic 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.
19) Both front and rear screws must be used and must always secure the body to the chassis.
20) 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.
21) Bodies that violate Body Rules 4 and 9 by having illegal openings such as too large or unrealistic windows, missing engine covers, and open truck beds may be repaired by gluing a 0.025 minimum thickness plastic cover over the opening. The repair must be made so that its thickness can be checked using a micrometer having a diameter anvil.

Chassis Assembly Regulations

1) Only original Aurora ThunderJet chassis assemblies or Wizzard Wizz-Jet chassis assemblies with non-plated copper electrical components are allowed. No mixing and matching of Wizz-Jet/Aurora gearplate and chassis assemblies.
2) Chassis may be blueprinted if original chassis dimensions, axle hole location, cluster shaft location, and armature shaft location are not altered
3) Commutator brush springs may be bent to alter brush tension.
4) Pickup shoe hanger plates may be bent.
5) Electrical components may be replaced with copper parts only
6) The rolling chassis axle, armature, and drive pinion shaft holes may be opened slightly for increased clearance.
   a) The Truck hole cannot be utilized in any way.
7) The rolling chassis assembly must not be fitted with bushings.
8) The chassis may be trimmed slightly (no more than .010) to allow for crown gear tooth clearance.
9) 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.
10) Each armature pole is to be measured across two separate commutator segments. The AVERAGE of all three poles must be 16.0 ohms or greater at 70 degrees. 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.) We have an armature that tests 16.0 on all three poles at 70 degrees. It ohms lower in cooler temperatures and will be the standard for testing arms at the event. The Hall temperature can vary between 60 to 70 degrees depending on time of year.
11) Only Aurora Super II, Johnny Lighting, Auto World, Dash Motorsports, or BBT-Jets ceramic magnets may be used. The magnets may be sanded to fit the chassis. The distance between the magnets must be a minimum of .700”; no exaggerated sanding is allowed to close the armature gap. This will be teched using our Plug.
12) Magnets may be shimmed with non-magnetic material. No shims are allowed either under or on top of the magnets.
13) Any flat top and bottom carbon/copper motor brushes are allowed. 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.

14) All brass gears must be minimum thickness of .047
15) Only stock T-Jet or commercially available stock replacement 14 tooth brass armature pinion gears are allowed.
16) Only stock T-Jet or commercially available stock replacement 24 tooth brass idler and driven gears are allowed.
17) Only stock T-Jet or commercially available stock replacement 9 tooth brass drive pinion gears are allowed.
18) Only stock T-Jet or commercially available stock replacement 15 tooth crown gears are allowed. The crown gear must equal or exceed .300". In reducing the crown gears to .300", the crown gear must maintain the 90-degree angle to the back of the gear's top and bottom. The gear cannot be angled, tapered, rounded, beveled, thinned, sliced, diced, drilled, etc. The idea is to allow the stock crown gears to be the same diameter as the aftermarket crown gears. This will be looked at VERY closely. The crown gear boss may be trimmed, spacer(s) may be added to adjust for proper gear mesh within the crown gear box. You can add a small Delrin retainer to the driver's side rear axle for the purpose of adjusting crown gear mesh with the 9T rear pinion. The diameter of the Delrin retainer must not exceed 0.125" with a thickness not to exceed 0.070". The new Quicker Engineering 15 Crown gear is approved for use.
19) Cluster shaft must be metal with a maximum diameter of .0650".
20) Gear tooth friction surfaces can only be deburred by polishing, filing, or sanding.
21) Gears must not be chamfered, lightened, or relieved.
22) Only commercially available front wheel, tire, and axle assemblies including Wizzard, Zoomin Motorsports, JW, and RTHO may be used with two exceptions. The front and rear axle diameter must not exceed .065" and the front tire diameter must equal or exceed .300". Front axle washers (small spacers) are allowed. All spacers/washers must be located outside the chassis or chassis frame rail, with the exception to the above rolling chassis rule #13. Maximum lateral movement in the front wheel assembly is 0.031 (1/32). All unmodified commercially available front wheel, tire, and axles parts may be mixed and matched. Note: The approved offset weight front ends that are legal for the Fray are: Zoomin Motorsports # FE01 and RTHO # RT230, OS3 Anchors, and Balls Out composite, Wizzard TJF20.
23) Rear wheels must be plastic or Delrin with dished center. No axle weights, wheel weights or hub caps allowed on rear axle or inside the wheels. Note: A small Delrin retainer will be allowed on the driver's side rear axle for the purpose of adjusting crown gear mesh with the 9T rear pinion. The diameter of the retainer must not exceed 0.125" with a thickness not to exceed 0.0700" (See Rule #13).
24) Any stock or stock replacement pickup shoe may be used. These shoes must have a factory formed step and the step must be unaltered except to allow flat pickup shoe contact with the track rail. American Line #313, BSRT #504, Slottech, and Dash 504
#1440, Wizzard #E82 & E90, and stock Aurora ThunderJet shoes are allowed. Ski shoes are not allowed.
25) The "step" in the pickup shoe must remain at a minimum height of .010 from the top of bend #2 to the bottom of bend #3. The first bend in the step, (Bend #2), may be changed slightly so that proper "pickup 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. The front vertical slotted portion of the pickup shoe may be bent to limit shoe travel. The rear hook portion of the pickup 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.



26) Pickup shoe springs may be cut, stretched, shimmed, or compressed but must maintain stock shape and configuration.
27) Any amount of the vertical gearplate rails above the upper horizontal plane may be removed. No amount of material may be removed from the gearplate at or below the upper horizontal plane. The serial/patent numbers and letters must also remain intact.
28) Commercially available guide pins must be plastic and must be of a design essentially like the original Aurora black plastic front guide pins. They may be cut, trimmed, or bent. Countersinking of the guide pin screw hole is permitted.
29) Glue may be used on a rolling chassis assembly only for the purposes of attaching gears to shaft, guide pins to chassis, and front wheel axle retainers to the end of front axle. Solder may be used to attach metal gears to their metal shafts.
30) The axle and gear shaft holes may be enlarged or decreased slightly to adjust for proper fit without the use of fillers.
31) The Chassis may be oiled to maximize performance.
32) The promoters reserve the right to clarify and interpret the rules as they arise for the best interest of the event.

E-FRAY

General

1) Same rules apply as the Fray SS car with the following changes:
    a. Dash chassis/gearplate allowed. **Note: The DASH Blizzard chassis is NOT allowed.**
    b. Chassis and gearplate manufacturer must match
    c. Rear slip-on style wheels and tires ONLY
    d. Rear wheels must be plastic. Single or Double flange
    e. Overcoating and/or recoating of rear tires is not permitted
    f. 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, TJE01X

    g. Minimum front tire diameter of .300”

RACE PRIZES

1) Top three finishers for each class will be awarded a prize – determined by laps and sections
2) Overall winner will be determined by best average finish in four of the five races. Lowest racers finish will be dropped.
3) In the event of a tie in the overall:
    a. The fifth race finish will count
    b. If there is still a tie, total laps (without sections) will count

BEST APPEARING

Pat Dube Award – Sponsored by Peter Lentros

1) One each for Saturday and Sunday
2) Plaque and a $35 certificate for each day. Certificate to be used at Len-Jet store.
3) Body can only win once.
4) Body must be used in competition on the day it is submitted for this award
5) Judging will be determined by three appointed racers