

# HO Drag Racers Association (H.O.D.R.A.) National Rules

## **Notice:**

This document is provided for informational and recreational purposes only. The information contained within this document represents the current national view of H.O. scale drag racing. The information contained within regarding definitions, general rules and class rules is provided "as is" without guarantee or warranty for any purpose either expressed or implied but not limited to warranties of fitness for purpose, freedom from infringement and merchantability. The user of this H.O.D.R.A.® official national membership/rulebook assumes the entire responsibility and risk as to the accuracy, completeness and viability of the document. This document may not be copied by mechanical or electronic means in whole or in part for any purpose under penalty of copyright infringement and service mark/trademark law. All other inquiries made must be in writing and forwarded to the National Director.

## **Disclaimer:**

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**HO Drag Racers Association (H.O.D.R.A.)  
National Rules**

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# HO Drag Racers Association (H.O.D.R.A.) National Rules

## A. Acknowledgments:

H.O.D.R.A.® acknowledges the following individuals who have provided technical assistance in the hobby/sport of H.O. Drag Racing. These are voluntary committee members. No solicitation, financial or “free of charge” slot car parts support is provided or accepted by any H.O.D.R.A.® voluntary committee member or patron. This prevents unfair advantages and promotes good hobby sportsmanship.

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## H.O.D.R.A.® Regional Divisions:

- Division 1 – Connecticut, Delaware, D.C., Massachusetts, Maryland, New Jersey, New York, New Hampshire, Pennsylvania, Rhode Island, Vermont, West Virginia, and Toronto area /Ontario Canada.
- Division 2 – Alabama, Florida, Georgia, North Carolina, South Carolina, Tennessee, and Virginia.
- Division 3 – Illinois, Indiana, Kentucky, Michigan, Ohio , Wisconsin and Windsor area / Ontario, Canada.
- Division 4 – Arkansas, Louisiana, Mississippi, New Mexico, Oklahoma, Texas, Puerto Rico and Mexico.
- Division 5 – Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wyoming.
- Division 6 – Alaska, Idaho, Montana, Oregon and Washington.
- Division 7 – Arizona, California, Hawaii, Nevada and Utah.
- Division 8 –United Kingdom (England/ Scotland/ Wales)
- Division 9 – Australia, New Zealand
- Division 10 - Japan



# HO Drag Racers Association (H.O.D.R.A.) National Rules

## **Introduction:**

It all began with the advent of the Aurora H.O. slot car 46+ years ago. Originally designed to supplement H.O. scale model railroading, the cars were found to be inaccurate for model railroaders modeling in this scale/gauge. Shortly thereafter, enthusiasts of the H.O. scale slot car discovered that the cars could be modified to improve their performance just like their 1:1 scale counterparts.

Today, H.O. scale slot car racing continues to grow and H.O.D.R.A.® continues to lead the way in fun and affordable H.O. slot car drag racing from T-Jets to Neos.

H.O. slot car drag racing remains the nations fastest straight line motor sport and H.O.D.R.A.® remains the nations premier association uniting H.O. drag racers since 1997.

## **Mission Statement:**

This 11<sup>th</sup> anniversary edition of the H.O.D.R.A.® membership/rulebook was conceived as a way of refining a uniform set of rules for H.O. scale slot car drag racing. By providing rules for all types of cars & chassis currently available and for which replacement parts exist, a drag strip track owner, promoter or club organizer can effectively select classes to run which are of interest and are affordable to race in most any locale. Therefore, a competitor in the East will know the definition of a specific car/chassis class just as a competitor in the West will. It is the intent of H.O.D.R.A.® to provide access to regional and national events and to promote the Hobby/Sport of H.O. drag racing everywhere!

### Note:

The original Vintage Aurora Slot Car Racers Alliance (V.A.S.C.R.A.), a road racing club, whose rulebook may be obtained elsewhere on this site, is an affiliate of the H.O.D.R.A.®



# HO Drag Racers Association (H.O.D.R.A.) National Rules

## B. General Rules and Definitions:

All cars and racers shall comply with these general rules and definitions. It is the responsibility of the car owner/builder/driver to do so. If you do not understand a rule contact a H.O.D.R.A.® official prior to the event for clarification. If it is not written, it shall not be specifically legal in H.O. drag racing competition.

1. Drag Racing – The simplest type of automotive racing possible. A drag race is an acceleration contest between (2) two vehicles from a standing start over a measured distance, usually a quarter mile. H.O. drag racing is the same concept using specific scales of electric model racing cars and trucks over a smaller scale of measured two-lane slot car track.
2. Bracket Racing – A form of drag racing whereby vehicles of different weights and performance levels can compete on a potentially even basis. (see Bracket Class Racing – in Competitive Classes Section – page 34.)
3. Cut(s) – To remove, drill, sand, reduce machine, lighten, ventilate or trim from a chassis or body. (Excludes natural wear from physical handling, crashes, track rails or braid.)
4. Hard body Shell – A car body made of factory type plastic. It may be injection molded or a poured resin casting.
5. Lightweight Shell – A car body made of butyrate, polycarbonate, poly/butyl styrene or vinyl, which has been heated and vacuum formed to shape.
6. H.O.D.R.A.® Approved – Any part, product or item legal for use in H.O. drag racing competition as declared by the National Director, event official or technical advisor/official.
7. Stock Replacement – A readily available original type part.
8. Readily/Commercially Available – A part, product or item which has been massed produced and available through distributors, mail order and retail enterprises at least 90 days before the scheduled national or regional event.
9. Entry – An individual with a class car who has paid a set fee to drag race.
10. Pre-Tech – A pre-race inspection by an official to determine class compliance and parts/chassis/product legality.
11. Post-Tech – Eliminations class winner inspection for the same intended purpose as in #10.
12. Shim – material used for placing the armature magnets closer to the armature for the purpose of maximizing electro magnetic force. Non-magnetic material only such as brass, plastic or cardstock.
13. Stock – Any chassis or part that normally comes with the car.
14. Flux Collector – Material that exhibits a magnetic attraction to a ferrite, ceramic, polymer ceramic, alnico, cobalt, neodymium or other rare earth type magnet. A car/chassis shall have a maximum of (2) two flux collectors and must be original to the chassis as designed.
15. Extra Magnets – Any magnets which are NOT armature magnets. May not exceed more than (2) two.
16. T-Jet – (slang) an original Thunder Jet 500 chassis by Aurora.
17. Tuffy - (slang) an original Tuff Ones chassis by Aurora.
18. Scale – The gauge to which the cars must conform is 1/76<sup>th</sup> and 1/64<sup>th</sup> that of an actual race car or truck.
19. Width – All cars must not be more than 1.495in. (37.72mm) wide at any point as measured by the H.O.D.R.A.® designed billet aluminum tech block.

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20. Wheelbase – The minimum allowable wheelbase is 1.375in. (34.92mm).
21. Clearance – The minimum clearance for chassis is 0.063in. (1.6mm). No car or chassis part may touch the track surface when at a stand still except the guide pin, pickup shoes and tires
22. Wheels – All cars must have (2) two wheels front and rear and must be equipped with appropriate tires which touch and roll when checked on a test track or block with no rails. Front wheels shall rotate on axles. Front wheels are required to touch the drag strip track surface in Stock, Super Stock and Factory Stock pancake powered and inline classes only.
23. Guide Pin – Only one guide pin or flag shall be permitted. Guide pins shall be constructed of any durable material. Keep the stock type material and design in mind for factory stock classes.
24. Body – The design of the body must resemble a full size car or truck. The wheelbase must conform to the original styled body openings. Designers, Fabricators and Manufacturers shall conform to said body rules or their car body shall be ruled ineligible for competitive purposes.
25. All hardtop bodies shall have a transparent or opaque windshield and back glass in all hard body classes. Replacement or reproduction glass is acceptable. Polycarbonate style plastic or cardstock is prohibited in hard bodies which were originally equipped with hard plastic.
26. Paint – All bodies shall be painted opaque. Clear or transparent bodies prohibited. The chassis shall not be visible through the body when viewed from above under normal lighting conditions with the notable exception of Pro Rail and Top Fuel Dragster classes whereby 2/3rds of the chassis (rear) may be visible from above and the sides.
27. Bumpers – All cars must be run with front and rear bumpers and grills if they were original to the hard body.
28. Chassis – All components that make up a running/rolling chassis.
29. Air Control Device – All spoilers, air foils and wings must conform to scale appearance. Paper and cardstock material is prohibited.
30. Chassis Lift Control Device – Permitted in all classes including Factory Stock classes. Wheelie bars, casters and drag bars must be attached in a secure manner to the rear of the car body or chassis. Acceptable methods include the following: hot melt, cyanoacrylate glue, two part epoxy and body screw mounting post attachment. All lift control devices may not exceed the entire length of the chassis from the pickup tip to chassis tail. Lift control devices may not touch the track surface when at a stand still/staged and may not imitate a guide pin in function by extending into the slot.
31. No slot less type chassis may be converted for competitive purpose.
32. Mounts – All body mounts must be non-magnetic and must adhere to the chassis in a secure manner. Acceptable methods include pin and tube, Velcro (hook and loop) and double sided mounting foam or tape.
33. Can Motor – End bells may be replaced with exact type replacements. Only Mabuchi, Johnson or Sun brand motors shall be considered legal for competitive purpose. A Tomy motor shall not be substituted for a Tyco/Mattel motor and vice-versa. The only exception to this rule is the “Super Pro Can” motored class.
34. Can motored chassis are not considered inline chassis even though they use an inline motor for power. These are considered separate.
35. Front wheel drive, rear wheel direct drive and (4) four-wheel drive chassis are prohibited at the national level competition.
36. Stickum: Duct tape, track glue or other glue or spray adhesive is strictly prohibited on tires or track surface.

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37. Heat sinks are permitted only in the "Pro", "Super Pro", "Outlaw" and "Top Fuel" classes.
38. Each competitor is permitted only one car per class.
39. Permitted – allowed.
40. Prohibited – NOT permitted/allowed.
41. R2 – encompasses Johnny Lightning/Playing Mantis/Auto World/Round 2 cars, bodies and chassis parts.
42. Open wheeled road race, INDY/FI style, military, golf cart, snowmobile, cartoon character or other non-car/truck bodies prohibited in all levels of competition.
43. "Older" style chassis and limited production/availability chassis for which readily available parts do not exist or are not widely available are permitted to compete in the bracket class only – ex. A.J.'s, Atlas, Bachman, Bullmark, Bandai, Cobramite, Cox, Amrac, Dynabrute, Eldon, Lionel, Tyco-S, Tyco-Pro, Wrenn, etc. Rigger H.O. chassis parts and motors are now being reproduced in the aftermarket and cottage industry. The Aurora "Specialty" chassis remains non-sanctioned this due to parts un-availability.
44. Tires and Wheel Sizes – All tires and wheels must be sized for H.O. cars. The use of "large scale" tires is prohibited. Tire and wheel combinations may NO exceed a maximum height of .520 in. in overall diameter mounted on wheel, with the exception of the Specialty chassis classes which permits a maximum .620 in. tire mounted on the Specialty chassis wheel. However, the Aurora AFX Specialty chassis is out of competitive racing for 2009-2010 due to insufficient original and aftermarket/cottage industry replacement parts availability.
45. Non-Stock, aftermarket spacers, springs, bearings, and bushings are prohibited in the Stock, Super Stock and Factory Stock classes.
46. The Slottech Panther and Thunder Cat 1, Scale Auto/BRST G2 & G3 "soft", "medium" and "hard" chassis Wizzard Patriot 1, 2, and 3,E, Scorpion , Storm, Thunderstorm, DeCosmo T+ and any other custom manufactured chassis are permitted to compete in the "Pro" or "Top" classes only. The Cheetah, Thor and Hammer chassis are permitted to compete in these classes if one pair of traction magnets is removed. Aluminum or brass "fillers" are permitted to fill the void if desired.
47. If a new or current manufacturer creates and produces replacement parts for any non-competitive chassis in order to make this chassis competitive apart from the bracket class, they shall submit their parts to H.O.D.R.A.® National Director and Technical Advisor for approval. Said parts must be produced in sufficient quantity for approval to occur as determined by the National Director/Technical Advisor. The National Event "90 day" parts availability ruling applies and said parts must be submitted to the Committee for approval or dis-approval.
48. The basis of the competitive class structure and primary focus of H.O.D.R.A.® is chassis design, construction and modifications to each chassis. Body design, through important in its own right, is secondary to this focus.
49. Creative interpretation and "loopholing" the rules is strongly discouraged. Rigorous honesty is the H.O.D.R.A.® creed. "Cheating" will not be tolerated.
50. Chassis and individual chassis parts protests are sanctioned. Please see section G. rule no. 6. No group of parts may be replaced during competition. Individual parts may be replaced between rounds only w the notable exception of the qualifying armature.
51. Hobbed – slang for scratch built/home built.
52. Slimline pancake motored Aurora chassis are not considered a competitive chassis at this time for 2009-2010 due to parts un-availability and remains non-sanctioned.

# HO Drag Racers Association (H.O.D.R.A.) National Rules

## **C: Controller Specifications:**

As individualized as each of the H.O. chassis classes is, so too is the drivers controller. Each participant in H.O.D.R.A.® drag racing competition may use any of the following controllers to launch and drive their cars with the following mandatory ruling applied:

Any controller may be used of any OHM rating as long as the controller body/frame is palm gripped and trigger operated. Any controller may be used as long as it uses no internal or external batteries or capacitors, power supplies, or other power sources to regulate or store additional amperage or track voltage. Specifically prohibited are any and all voltage/amperage doublers, converters, capacitors, battery powered relays, transformers or other encapsulated devices designed for the purpose of providing any open or hidden advantage. Simple wire wound rheostats, chokes, non-battery powered bypass relays or diodes are permitted and are not considered a violation of this ruling. "Instant on" high amp appliance, automotive or other electronic micro switches are prohibited. Any inline automotive or electronic style relays used must be inline and powered by track current only. A two wire connection is recommended and is all that is REQUIRED. All controllers are subject to H.O.D.R.A.® tech inspection prior to practice, qualifying and/or elimination rounds to verify safety and rule compliance.

## **D: Competitive Drag Racing Classes:**

### **1. Factory Stock T-Jet: (FS/TJ)**

1. Stock Hard body – May be injection molded original, reproduction, or resin casting and must use the front and rear mounting posts and screws to secure the chassis. Wheel wells and mounting posts shall not be cut. Front and rear bumpers shall be intact if said body was originally equipped.
2. Chassis – Shall be standard Aurora Thunder Jet 500 copper bottom original or New Model Motoring T + copper bottom. Slimline chassis/armature prohibited.
3. Pickup shoes shall be original styled copper stepped type. Re-bends or flats are prohibited.
4. Brushes – Shall be stock type flat copper carbon and can be X'd. No silver or silver crown type. J.B.'s Tunderbrushes, Wizzard or BSRT copper replacements are permitted.
5. Wheels and Tires – Stock thin chrome plated wheels and thin ribbed edge rubber tires (.075 in. / 1.90 mm).
6. Silicone tires of any type prohibited. Factory Stock Aurora, Model Motoring or R2 "ribbed" tires are permitted.
7. Aftermarket, "4 Dimple" and Tuff Ones and AFX type wide wheels prohibited.
8. Gearing shall be stock and this includes the 15 tooth crown gear and final drive 9 tooth pinion. 12 and 14 tooth pinions are prohibited.

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9. Motor – Stock gray pole or white pole. Green wire, gold wire, red wire or rainbow wire. OHM reading no less than 15.0 OHMS. Rewinds, de-winds, epoxying and balancing prohibited.
10. Magnets – Stock charcoal black, green/orange or green/white only. Magnets may be shimmed to prevent slop.
11. Magnets may not be swapped between Aurora chassis and New Model Motoring chassis or the JL/PM chassis, etc.
12. Chassis cuts prohibited.
13. Car must weigh no less than 18.0 grams.
14. With the demise of the T-Plus chassis and dwindling stock of original T-Jet chassis it is anticipated that the Dash T-Jet chassis will take the place of the original Aurora T Jet and the M.M. T-Plus chassis in 2010 upon release and inspection by H.O.D.R.A. technical inspectors.  
(Sportsman Tree Start)

### **2. Super Stock T-Jet/T-Plus: (SS/TJ/TP)**

Same rules apply as Factory Stock T-Jet press on or screw on wheel/axles as long as they are used in matching front/rear sets. Ex: original Aurora Model Motoring “speed hubs”, New Model Motoring aluminum hubs, 3R’s wheel sets, Tuff-Ones or R2 wheels, M.E.V.’s, Champions, MPMM, R.T. H.O. , A.J.’s, AFX, Vincent’s, 3R’s etc. Rubber or silicone tires are permitted and front and rear tires may be different sizes. Minimum weight 19.5 grams.  
(Sportsman Tree Start)

### **3. Super Stock Tuff One: (SS/TO)**

1. Stock Hard body – May be injection molded original or resin casting.
2. Chassis – Shall be stock silver or nickel plated bottom.
3. Pickups shall be silver or nickel plated stepped type original and may NOT be re-bent. BRST T-Jet or other “flats” prohibited.
4. Brushes shall be stock flat silver material. A.G.& G. Superbrushes permitted.
5. Wheels and tires shall be stock narrow fronts and wide rears. Rear tires may be slip on silicone compound on stock rear wheel. Maximum width 0.235 in (5.97mm).
6. Motor shall be stock red pole green wire and have an OHM rating no lower than 5.5 OHMS. An original Aurora Tuff One motor may be substituted to a JL/PM tuff ones type nickel plated chassis.
7. De-winds, re-winds, epoxy and balancing prohibited.
8. “Hop UP” magnets of any kind prohibited. PM/JL/TO magnets and AW/TO magnets may not be interchanged/swapped.
9. Chassis cuts prohibited.
10. Minimum weight 19.5 grams.  
(Sportsman Tree Start)

# HO Drag Racers Association (H.O.D.R.A.) National Rules

## 4. Modified T-Jet/T-Plus: (M/TJ/TP)

1. Body – Any T-Jet style hard body permitted utilizing screw on mounting post.
2. Chassis shall be stock COPPER bottom.
3. Pickups shall be copper only but may be modified and re-bent. Shunt wire and de-soldering braid prohibited.
4. Brushes – Any type permitted.
5. Gears – Any type permitted.
6. Motor may be de-wound and balanced but otherwise stock grey pole or white pole. OHM reading shall be no lower than 6.0 OHMS. (green wire OK)
7. Magnets – Any ceramic type permitted.
8. Wheels and Tires – Any type permitted.
9. Chassis cuts prohibited.
10. Balancing of armature permitted.
11. Minimum weight 18.5 grams.  
(Sportsman Tree Start)

## 5. Stock AFX: (S/A)

1. Stock injection molded factory hard body, later produced injection molded replacement body or resin casting only. Must use snap in mounts.
2. Chassis must be stock silver or nickel plated.
3. Pickups – Silver or nickel and shall NOT be re-bent.
4. Wheels and Tires shall be stock style rubber compound. Buna rubber and silicone tires prohibited.
5. Gear swapping prohibited. 15 tooth stock crown only. Must use unaltered stock copper retaining clip.
6. Motor shall be stock green pole, green wire only and have an OHM reading no lower than 6.0 OHMS>
7. De-winds, re-winds, epoxy and balancing is prohibited.
8. Factory “Hop UP” magnets prohibited. Magnets shall be stock.
9. Brushes shall be stock silver crown bevel type only.
10. Chassis cuts prohibited.
11. Minimum weight 19.0 grams.  
(Sportsman Tree Start)

## 6. Stock Magnatraction: (S/MT)

1. Body shall be stock injection molded original hard body or later produced injection molded body using snap in mounts. Resin cast permitted.
2. Chassis shall be stock silver or nickel bottom.
3. Pickups shall be stock type silver or nickel plated and may NOT be re-bent.
4. Wheels and tires shall be stock wheels and rubber tires only front and rear.

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5. Stock gears only – Gear changes prohibited. Must use unaltered stock copper retaining clip.
6. Motor shall be stock red pole, red wire or gold wire. Epoxy and balancing prohibited. Motor shall have an OHM reading no lower than 14.5 OHMS.
7. De-winds, re-winds and quadralam armatures prohibited.
8. Advanced commutators prohibited.
9. Chassis cuts prohibited.
10. Minimum weight 19.5 grams.  
(Sportsman Tree Start)

### **7. Modified Tuff One: (M/TO)**

1. Hard body may be injection molded original type or resin casting. Body posts may be cut to lower height and stance. Body may be cut.
2. Chassis shall be silver or nickel bottom. Aurora and JL/PM permitted.
3. Pickup shoes may be any type. Shunt wires permitted.
4. De-soldering braid and shunt wire on pickups prohibited.
5. Magnets – “Hop Up”, polymer, sanded magnets permitted. Cobalts and Neodymium magnets strictly prohibited.
6. Wheels and Tires – Any type permitted.
7. Any gear ratios permitted.
8. Motor must be “pancake” type factory Aurora, AFX, Magnatraction, Tuff Ones, Wild Ones, and Specialty. Quadralams, and aftermarket armatures strictly prohibited. Motor must have OHM rating no lower than 5.5 OHMS. Motor may not be de-wound, re-round or cut for balance.
9. Any type motor brushes permitted.
10. Additional magnets or chassis magnets prohibited.
11. Chassis cuts permitted.
12. Chassis front end extensions prohibited.
13. Minimum weight 18.0 grams.  
(Sportsman Tree Start)

### **8. Modified AFX: (M/A)**

1. Body - Must use snap in mounts. Any plastic permitted.
2. Chassis – Stock type. Super II prohibited.
3. Pickups – Stock type silver or nickel plated. De-soldering braid permitted.
4. Wheels and Tires – Any type permitted.
5. Any gear type or ratio permitted.
6. Motor – Any factory type pancake motor. OHM reading no lower than 5.5 OHMS.
7. Re-winds, de-winds and quadralams prohibited.
8. Balancing and epoxying of armature permitted.
9. Magnets may be any type. Additional magnets prohibited.
10. Chassis cuts permitted.

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11. Chassis front end extensions prohibited.
12. Minimum weight 19.5 grams.  
(Sportsman Tree Start)

### **9. Modified Magnatraction: (M/MT)**

1. Body – Any body shell permitted.
2. Chassis – Stock type Magnatraction, soldering permitted, shut wire permitted.  
De-soldering braid prohibited.
3. Stock silver plated or nickel plated pickups only.
4. Wheels and Tires- Any type permitted.
5. Any gear ratios permitted.
6. Motor – any “pancake” style production motor. No aftermarket or quadralams.  
OHM rating no lower than 5.5 OHMS. Balancing and epoxying of armature permitted.
7. “Hop Up” or Polymer magnets permitted.
8. Chassis cuts permitted.
9. Chassis front end extensions prohibited.
10. Minimum weight 18.0 grams.  
(Sportsman Tree Start)

### **10. Modified HP2 / Curvehugger: (M/HP2/C)**

1. Body – Any type permitted.
2. Brushes – Any type permitted.
3. Motor – Stock can type only – OHM reading no lower than 8.0 OHMS.
4. Wheels and Tires – Any slip on type permitted.
5. Magnets shall be stock only to the can used.
6. Cut in can or endbell prohibited.
7. Pickups – Stock or readily available stock replacement only.
8. Tomy Turbo motors, toy motors or other hobby style/train motors prohibited.  
Must use stock Tyco motor, magnets and can. Mabuchi or Johnson brands only.
9. Re-winds and de-winds prohibited. Balancing and epoxying prohibited.
10. Chassis front end extensions prohibited.
11. Chassis cuts permitted.
12. De-soldering braid and shunt wire prohibited.
13. Minimum weight 17.5 grams.

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(Sportsman Tree Start)

## 11. Super Stock HP 7: (SS/HP7)

1. Body – Any hard shell body permitted.
2. Motor – Stock can motor only. Green or gold wire. OHM reading shall be no lower than 8.0 OHMS. Re-winds, de-winds, epoxy and balancing prohibited.
3. Any gear ratio permitted.
4. Wheels and Tires – Any slip on type permitted.
5. Pickups – Stock only. Soldering, de-soldering braid or shunt wire prohibited.
6. Chassis cuts prohibited.
7. Chassis front end extensions prohibited.
8. Minimum weight 19.0 grams.  
(Sportsman Tree Start)

## 12. Factory Stock Inline: (FS/I)

1. Body – Any factory hard body permitted. Must use original body and chassis mounts.
2. Chassis – Factory stock toy company produced inline, 1986 or newer as it came from the factory box or blister card. (Tomy/Aurora SuperG+, Tyco/Mattel 440-X2/X3 and A.W.inline chassis only)
3. Pickups – Stock, no modifications.
4. Pickup Springs – Stock only, no aftermarket or flats.
5. Wheels and Tires – Stock type wheels and rubber only.
6. Motor – Stock type only what came with the chassis originally. Armature balancing prohibited. Epoxy, de-winds, re-winds, worked up or hot stock strictly prohibited. OHM reading no lower than 5.8 OHMS.
7. Gears – Factory only ration. No changes permitted. Factory material only.
8. Magnets – All magnets must be stock as originally equipped with chassis. Changes and modifications prohibited.
9. Additional magnets prohibited.
10. No chassis front end extensions prohibited.
11. A box stock class w/o changes or modifications of any kind. All P1, P2, P3, and E chassis, Panther chassis, G2/G3, DeCosmo and hobbled chassis strictly prohibited.
12. Minimum weight 18.5 grams.

# HO Drag Racers Association (H.O.D.R.A.) National Rules

(Sportsman Tree Start)

## 13. Pro DoorSlammer: (P/D)

1. Chassis – Any inline type permitted.
2. Pickups – Any type permitted.
3. Wheels and Tires – Any type permitted.
4. Body – Any type permitted of hardtop or ridged coupe in nature. Funny car and rail bodies prohibited. “Top Down” convertibles prohibited. Altered wheelbase bodies permitted but they must fit the factory style chassis front and rear wheel placement w/o modification.
5. Magnets – Any type permitted.
6. Motor – Any inline type permitted. Minimum 3 OHMS.
7. Shunt wire prohibited. De-soldering braid prohibited.
8. Any gear ratio permitted.
9. Any brushes permitted.
10. Heat sinks permitted.
11. Chassis cuts permitted.
12. Chassis front end extensions prohibited.
13. Minimum weight 17.0 grams.  
(Pro Tree Start)

## 14. Pro Rail Dragster: (P/RD)

1. Body – Any rail dragster type body hard or lightweight acceptable. Diecast, aluminum and brass formed bodies prohibited. Overall length must no be longer than 6.0 in. (152.40 mm ) from tip to tail. Body is only required to cover the chassis approximately 2/3rds front to rear of chassis.
2. Chassis – Any inline type permitted.
3. Pickups – Any type permitted. Shunt wire and de-soldering braid permitted.
4. Magnets – Any type permitted. Rare Earth Type prohibited.
5. Motor – Armature OHM reading no lower than 5.5 OHMS. Re-winds, de-winds, balancing cuts prohibited.
6. Chassis front end extensions permitted.
7. Chassis cut permitted
8. Minimum weight 20.0 grams.  
(Sportsman Tree Start)

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## 15. Pro Truck: (P/TK)

1. Body – Hard body or lightweight shell permitted.
2. Must conform to pick up truck type appearance. El Camino and Ranchero type bodies prohibited.
3. Modifications – Same as Pro Rail class with exception (see #3).
4. Chassis front end extensions prohibited.
5. Any inline chassis permitted except; P1,2,3,E,Scorpion, Panther, Cheetah and G2/G3, etc. This is a modified factory chassis class. Tyco.Mattel, Tomy/Aurora. AW and Mega G Inline chassis only.
6. Magnets – Polymers permitted. Rare Earth Type prohibited.
7. Chassis cuts prohibited.
8. Minimum weight 20.0 grams.  
(Pro Tree Start)

## 16. Pro Funny Car: (P/FC)

1. Body – Funny car hard body or lightweight shell.
2. Modifications – same as Pro Rail class.
3. Chassis front end extensions permitted. Must not extend past the confines of the body.
4. Magnets – Rare Earth Type prohibited. Polymers permitted.
5. Gears – Any type permitted.
6. Chassis cuts permitted.
7. Minimum weight 19.5 grams.  
(Pro Tree Start)

## 17. Pro Tuff One: (P/TO)

1. Body – Any type permitted.
2. Chassis – Tuff one silver bottom. Shunt wire and de-soldering braid permitted.
3. Pickups – Any type permitted.
4. Wheels and tires – Any type permitted.
5. Motor – Any armature permitted. Advanced commutators and silver commutators prohibited. OHM rating no lower than 5.0 OHMS.
6. Brushes – Any type permitted.
7. Gears – Any type permitted.
8. Magnets – Polymers permitted. Rare Earth Type prohibited. Traction magnets prohibited.
9. Traction magnets permitted.
10. Chassis cuts prohibited.

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11. Minimum Weight 18.0 grams (Pro Tree Start)

### **18. Super Pro Tuff Ones: (SP/TO)**

1. Body – Any type permitted.
2. Chassis – Any modification permitted.
3. Motor – Any motor or modification permitted. OHMS no lower than 2 OHMS. Silver commutators and Multi-Lam style armatures permitted.
4. Wheels and Tires – Any type permitted.
5. Magnets – Any type permitted. “Add-on” traction magnets permitted.
6. Chassis extensions prohibited.
7. Chassis cuts permitted.
8. Minimum weight 17.0 grams  
(Pro Tree Start)

### **19. Super Pro AFX/Magnatraction: (SP/AM)**

**The Aurora AFX Super II chassis may compete legally in this class in a stock or modified form.**

Combined class. You may run either chassis in this class. Follow Super Pro Tuff One guidelines.

Minimum weight 19.0 grams.  
(Pro Tree Start)

### **20. Pro Modified (P/M)**

1. Body – Any closed wheel car body permitted , yrs. 1936-present).
2. Chassis – Any inline type. Cuts permitted.
3. Modifications – Unrestricted.
4. Chassis front end extensions prohibited.
5. Chassis cuts permitted.
6. Polymer magnets only- neo or other rare earth magnets prohibited.
7. Motor shall be 33 ga./2.8 ohm restriction.
8. Minimum weight 19.0 grams.  
(Pro Tree Start)

### **21. Super Pro Funny Car: (SP/FC)**

1. Body – Any funny car style body. Body must be a minimum of 3.0” min. to 3.75” max. from front end tip to rear deck tail in overall length. Bodies under 3.0” are prohibited.
2. Chassis – Any inline type permitted.
3. Pickups – Any type permitted.
4. Motor – shall be 32 ga. Or smaller wire /no ohm restriction
5. Magnets – Any type permitted.
6. Wheels and Tires – Any type permitted.

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7. Chassis front end extensions permitted.
8. Chassis cuts permitted.
9. Minimum weight 18.5 grams.  
(Pro Tree Start)

### **22. Outlaw T-Jet: (O/TJ)**

1. Body – Must be a hard body only if injection molded plastic or resin casting and must use factory style mounting posts and screws to secure body to the chassis. Rear wheel openings may be enlarged to accommodate a larger rear tire. Posts may be cut to lower/alter height and stance. Body may be cut but no “holes” are permitted except for hood opening. Vehicle must look like a car when modifications are completed.
2. Chassis – Shall be Aurora, Thunder Plus or JL/PM original and may be made of copper or brass. Plating of chassis bottom parts with nickel, silver or gold is permitted.
3. Tires and Wheels – May use any material or compound but shall NOT exceed .520 in. mounted on wheel.
4. Motor – (1) One pancake type armature and un-restricted OHMS. May go as low an engineering/winding will permit/allow. Must fit inside confines of the chassis. Maximum number of armature laminations is (4) four.
5. Chassis cuts permitted.
6. Chassis front end extensions prohibited.
7. Chassis and top plate must fit together using copper clip only.
8. Gearing – Unrestricted.
9. Magnets – Motor magnets must fit in confines of the chassis, otherwise no restrictions
10. De-soldering braid and shunt wire permitted in any unrestricted combination.
11. Heat sinks, springs, brushes and brush cups permitted.
12. No weight minimum.  
(Pro Tree Start)

### **23. Top Fuel Rail Dragster: (TF/RD)**

1. Body – Length must be no longer than 8.250in. from tip of body front to tail of chassis. Plastic hard body or Lightweight.
2. Chassis – Any inline type.
3. Motor-shall be 31 ga. Or 30 ga. w / no OHM restriction.
4. Any other modification permitted/unrestricted.
5. Front Under tray – An under tray may be optionally fitted to the front end of the car body for the purpose of stability and protecting the nose section and wing during deceleration / stopping. Specifically, it may be constructed of optically clear polycarbonate, butyrate or vinyl in a rectangular shape. It shall be a minimum of .010 in. thick with the dimensions of 15.5 mm deep x 30.0 mm wide (+ or – 1.0mm). Folded/bent canard style end cap wings are optional and shall be to scale.
6. Minimum weight 22.0grams
7. (Pro Tree Start)

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### **24. Super Pro Can: (SP/C)**

1. Body – Any type permitted as long as it is a coupe/hardtop.
2. Motor – Any H.O. Style can motor with any modification permitted/unrestricted. Motor must fit within the confines of the chassis being used. Any brand, any modification.
3. Heat sinks prohibited
4. Magnets – Unrestricted armature or chassis magnets.
5. Wheels and Tires – Any type permitted.
6. Chassis front end extension prohibited.
7. Chassis front end extensions prohibited.
8. De-soldering braid and shunt wire permitted.
9. Minimum weight 18.0 grams.  
(Pro Tree Start)

### **25. Super Stock Tomy Turbo: (SS/TT)**

1. Body – Stock Tomy or PM/JL hard body only. Resin casted prohibited.
2. Motor – Stock Tomy can motor only. Armature magnets shall be stock. Hi-Performance Tomy green wire and red wire motors permitted.
3. Ski Shoes permitted. Pickup shoe may be modified and re-bent as can the pickup shoe holders.
4. Epoxy or polyurethane balancing, rewinds, dewinds, shunt wire and de-soldering braid prohibited.
5. Wheels and Tires – Stock front wheels and rear wheels mandatory. Stock front tires and any slop on rear tire permitted.
6. Gearing – Factory stock Tomy Turbo or SRT for can motored Turbo chassis.
7. Magnets – Stock Tomy Turbo may add dot style traction magnets or SRT conversion kit but NOT both. Super Racing Turbo (SRT) chassis may not be modified in any way except for slip on rear silicone tires.
8. Minimum weight 19.5 grams.  
(Sportsman Tree Start)

**26. R2 chassis** – due to the abundance of JL/PM/AW/R2 chassis, the committee is still deciding on classes for these chassis types. They are currently relegated to bracket class racing. A formal class breakdown decision will be rendered for the 2010 season. Heads up racing will be instituted for the UltraG Thunderjet 500 chassis at the 2009 H.G.N.'s.

### **27. Bracket Class Racing:**

In this class any car can run legally. Any chassis modification through box stock. The cars will run on an index, dial-in and standard tree. This is true handicap racing. With this system, virtually any two H.O. scale vehicles can compete on a potentially

## **HO Drag Racers Association (H.O.D.R.A.) National Rules**

even basis. The anticipated elapsed times (E.T.'s) are compared with the slower car receiving a headstart equal to the difference of the two. Should a driver go faster than their predetermined dial in, it is considered a "break out" and grounds for a disqualification. In the case of both drivers breaking out, the win will go to the driver who broke out the least.

Bracket Class Indexes:

.001-.400    .401-.800    .801-.500    1.501-2.500 up

### **E. Track Specifications and Rules:**

1. Drag Strip – The H.O. scale quarter mile is 20.625 ft (20 feet, 7 and ½ inches) in length. (timed area). This length of measured track permits 1/76<sup>th</sup> and 1/64<sup>th</sup> cars to be measured equally. Staging area shall be a minimum of 8.0" in length and the shutdown area shall be non-powered and minimum of 24.0" in length. Permanent, visible start and finish lines are required, minimum 3/32<sup>nd</sup> in diameter wide. Paint or automotive striping tape is acceptable.
2. Tracks may be constructed of any acceptable material including but not limited to plastic track, routed MDF w applied/painted epoxy coating or Formica style plastic laminate (pebble grain or slick finish). Minimum lane spacing between the two opposing powered lanes is 1.6325" (41.53mm). The dimensions between the lanes of the original Aurora "O" gauge track pieces is in the standard unit of measurement. The track lanes can indeed be wider, but shall be to scale.
3. All classes shall use the three amber sequential "Sportsman" tree start except the "Pro" and "Top" classes which shall use the "Pro" tree start. The three amber sequential start has a .5 second delay between each amber light. The "Pro" tree start uses a start system whereby all 3 amber lights come on simultaneously at .4 seconds.
4. The external Christmas tree (if employed) may used incandescent or light emitting diode style (automotive 194) bulbs or equivalent 194 style replacement LED's.
5. Track power shall be between 24.00 VDC and 25.30 VDC (+ or -0.5 VDC) of direct current power with minimum of (8) eight amps per lane. Power may be derived from a regulated and filtered electronic power supply (s) or industrial, automotive or deep cycle batteries. There is no amperage maximum. Battery chargers are NOT permitted in use while racing. Amperage loading/storing "can" style electrolytic capacitors capable of handling 24 VDC are encouraged as this prevents amperage "starvation" when utilizing a single electronic power supply.
6. The voltage shall be measured at the track rail (unloaded-no cars on powered track) using an accurate voltmeter.

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7. All tracks shall be wired for Parma® style controller hookups using ¼ in. diameter machine styled bolts for “alligator” clip connection and using a minimum of 12 awg. stranded and jacketed hookup wire.
8. All power to the vehicles shall be provided by the track rails or braid only.
9. All tracks shall be marked with a solid yellow or double solid yellow centerline. These may be painted on the track surface or applied via automotive striping tape. Center lines shall be a minimum of 3/32<sup>nd</sup> in. diameter to a max. of ¼” wide.
10. Christmas Tree – Tree lighting shall be visible from the drivers station. Tree shall imitate typical systems used and may be electromechanical or electronic in nature. The Christmas tree shall imitate typical units in both design and function. H.O.D.R.A.® approves units between 32” to 40” in height and placement between 3’ to 5’ behind the starting line. This is optional or in addition to “on screen” video monitor trees.
11. Christmas trees may be free standing trestle style over the track or wall or ceiling mounted over the track.
12. Track Mate Drag Pro or 3000 series timing systems or TrikTrax timing systems are the accepted timing standards. All homemade, non-calibrated systems which are not commercially available or proven accurate are denied for use at the national level of competition.

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### **F. Competitive Racing Procedures and Rules:**

1. Race Ready Call – After their name is called from the registration sheet by the race director, racers have (1) one minute to have their entry on the track.
2. Stage – All vehicles shall be permitted to be pre-staged and staged manually. Once a vehicle reaches the stage beam or trigger it shall be prepared to race. In order to be a legitimate pass, a vehicle must self start and cross the finish line.
3. Qualification – All vehicles are given (2) two qualification runs. Low qualifier races the slowest qualifier. Ex: in an (8) eight car field, #1 races #8, #2 races #7 and so forth. Low e.t. determines lane choice.
4. Non-Start – If a vehicle does not start, it is disqualified unless the track is proven faulty. If both vehicles fail to start they are permitted a re-run. If both still fail to start, they are disqualified.
5. Disqualifications – All eliminations are subject to the **first or worst rule**. When this occurs, the worst violation is eliminated. In determining lane boundary violations, it is considered a violation when any portion of the vehicle crosses the center or boundary line. The un powered “shutdown area” is excluded from this ruling.  
Examples:  
A: Car one red lights, car 2 breaks, stops or doesn't move, car 2 wins.  
B: Car 1 red lights, car 2 hits wall or crosses the center line before finish line, car 1 wins.  
C: Car 1 breaks out of index/dial in, car 2 doesn't move or breaks down track, car 2 wins.  
D: Both cars breakout of index/dial in, car w lesser breakout wins.  
E: Both cars fail to move, re-run race, both cars fail to move again, (sans track power problems), both cars eliminated.  
F: Both cars die before finish line, car that went furthest wins.
6. Elapsed Time – (E.T.), the quickest elapsed time from the previous race has lane choice. Elapsed time is the time it takes to travel from the green start signal through to the trap beam or trigger.
7. Bye Run – In an odd numbered vehicle field, a bye run shall occur (solo pass). No car shall have more than one bye run in any race unless the competitor cannot make the race ready call.
8. De-slots – If both vehicles de-slot, the vehicle furthest from the starting line is declared the winner. If both vehicles de-slot and one vehicle completely leaves the track surface, the other vehicle is declared the winner.
9. Break Rule – If a vehicle suffers mechanical difficulty at the starting line, the other vehicle shall make a pass and the E.T. will count in the next round in determining lane choice.
10. All racers have (1) one minute to remove their vehicle from the track after the completion of a run. Failure to do so will result in disqualification.
11. Low E.T. has lane choice in all subsequent rounds of competition.

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## **G: Driver Rules:**

1. Any misconduct by drivers (as determined by the H.O.D.R.A.® officials present) toward other drivers shall NOT be tolerated. A verbal warning will be issued on the first offense, and this will be followed by an immediate disqualification on the second offense. Any unsportsmanlike conduct shall NOT be tolerated. The use of obscenities or abusive language is NOT to be tolerated. A warning shall be served followed by disqualification on the second offense.
2. There shall be no driver changes or substitutions. The driver shall run the vehicle submitted to tech for each class respectively.
3. All drivers shall stand a minimum of (12.0") twelve inches from the track edge when preparing to make a run. Floor tape shall be used to mark this line.
4. All E.T.'s and MPH records shall be in real time and miles per hour and each driver is expected to accept the race directors decision on any potentially controversial matter.
5. Protest Procedure – Any competitor may “buy a look” at another competitors vehicle for a set fee of \$5.00. This fee is paid directly to the race/technical inspector who shall permit the protestor to view the vehicle with him for a period of (2) two minutes. If this is not satisfactory, the protestor shall pay a fee in the amount of x 2 the cost of the armature for the right to have any part(s) of the car disassembled by it's owner in the presence of the race/technical director and the protestor. If any part is declared by the race/technical inspector to be illegal, the offender is disqualified and the protestor shall have the protest fee returned minus the original \$5.00 “buy a look” fee which the technical inspector shall retain for the purpose of tool maintenance and calibration. The technical inspector has the final word on part legality.

H.O.D.R.A.®

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