# USST National Rules Overview (2010)

The USST National Series combines trucks from many different origins and blends them into a racing class that includes their different features. With the high expense of racing, fuel cost, and the economy in general, USST goal is for its racers to be able to use and depreciate the existing equipment they have invested in while moving toward a common truck. There is first goal of this rule set is to create a cornerstone on which to build equal competition between the following truck series; USST multiple divisions, I-70, Nashville, and ex-ARTS trucks.

90% of the trucks in these groups share three identical factors and one common factor:

- Perimeter frame
- Big Spring
- Steering Box (OEM style)
- Symmetrical Chassis

This most common style of truck in all the USST races is the baseline for 2009-2010. These four characteristics are the common denominators on which the USST National rule set is based. The fundamental concept is that performance enhancing features are weighted depending on track size and banking. A table of equalization factors for different features on trucks is used to add or remove weight. This is a weight based rule set that is easily adjustable. Lead is the cheapest and most measurable equalizer. A baseline ruleset that new trucks will be constructed to will be released. Existing trucks follow the National rule set while USST moves towards the baseline rule set that new trucks will be constructed to.

There are 4 separate documents that describe the National Series rules for 2010.

“USST National Performance Factors”: The definitions and listing of performance factors are described in the document

“USST National Series Procedures”: Describes race day activities and how each truck team will be given an assessment sheet to list these factors before events and their required weight will be calculated.

“USST National Technical Rule Set”: Describes common rules that ALL teams will conform to. This describes the entire truck with the exception of engine and performance factors..

“USST National Engine Rules Set”: Describes engines legal for National Series.

# USST National Technical Rule Set (2010)

USST welcomes chassis builders or racers to build chassis with the understanding that one of the fundamentals of truck racing is that the USST trucks should be extremely safe and the chassis durable. They will have higher centers of gravity, wide perimeter frames, and heavier weight than late models. The trucks rules will evolve toward a standard truck over time. For 2010, Trucks will conform to the following technical rule specifications. A weight sheet for each track will be released in advance of the event.

**FUNDAMENTALS**

- For 2010, Base Weights will range from 2900 to 3100 lbs with driver before the race impound but performance factors will bring some trucks down in the 2700s. A future goal is to evolve the trucks to a lighter base weight but the majority of the trucks are heavy. Weights will be adjusted a great deal for the performance factors table.
- Base weight will be released by USST prior to each race.
- 4 inch minimum frame height without driver at a tech tire pressures of 20 psi left/30 psi right.
- Crank height 11 inches minimum for Iron head engines. 12 inches minimum for Aluminum head engines.
- Wheelbase: 108 minimum, 114 maximum, 112 standard baseline wheelbase.. Max difference left to right is 1 inch.
- Track Width baseline is 65" maximum. Incremental weight penalties apply for wider track width. See Performance Factors. Track width will be calculated from measurements 3 and 4 inches off the ground without driver with wheels pointed straight for consistency and to minimize camber effects.
- Max left side percent attainable by most trucks. 57% left is baseline. Max left side is 58.0%
- Engine Setback: Trucks must meet one of the following requirements: 1. Measurement of 91 inches from back of block to centerline of rear axle. 2. Center of forwardmost spark plug hole to center of upper ball joints centerline maximum two inches.

**RADIATOR\COOLING SYSTEM**

- Aluminum or brass radiators allowed. No plastic radiators or side tanks allowed.
- Only block mounted, belt driven water pumps allowed. Water pump impellers may be altered.
- Must have a functional catch can installed minimum 1 quart capacity. Catch can will be sealed unit with vent. Catch can must vent on right side base of windshield in a visible area outside of body to allow driver, crew and officials to view venting.
- Electric fans permitted.

- Mechanical fan requires a shroud that must cover half the blade width and encircles the fan blades for at least the top half of the fan. Must have access to check crank height.
- No antifreeze, ethylene glycol, or similar coolants allowed. Reasonable use of corrosion inhibitors and/or lubricants and additive (s) to cooling system water is permitted.
- All cooling components and hoses must be mounted in front of firewall

**DRIVESHAFT**

- Driveshaft must be painted a bright reflective color have truck number on it.
- Stock type steel only for driveshafts, yolks, or slip yolks.
- No carbon fiber allowed
- No Aluminum driveshafts
- Minimum driveshaft tube outer diameter is 2 3/4 inches OD.
- Two containment loops constructed of a minimum 0.1875-inch thick steel are mandatory; one front and one rear.

**BATTERY AND BATTERY MOUNTING**

- 12 volt systems max.
- The battery must be securely mounted in a steel frame or box. The battery must be located between the trucks frame rails or the exposed sides must be covered by steel or a battery box not less than 20 gauge thick steel.
- Batteries must be mounted in front of rear axles and behind the driver's compartment.
- A labeled ON/OFF Rotary type Master Switch located in the drivers compartment is Mandatory for 2010. The switch must be wired to battery cable in a manner that will cut off all electrical power.

**CLUTCH/BELLHOUSING**

- Made for Racing only Single, double, or triple disc clutch may be used. Clutch & Flywheel must attach to crankshaft in conventional manner and rotate with crankshaft at all times.
- Recognized baseline clutch diameter is 7 ¼ inches. Performance factors apply. For example, in 2010 5.5 clutch with weight penalty of 35 lbs. 8.5 Coleman with weight break of 35 lbs. See Performance Factors.
- Standard production transmissions which are cataloged and available through regular dealer channels. Richmond, Borg Warner, Ford, Saginaw and Muncie brands are OK.
- Must have working forward and reverse gears; in addition to a neutral position and must be able to be shifted by the driver when fully strapped in.
- Maximum four forward gears.
- No aftermarket clutchless or internal clutch transmissions allowed No Bert, Brinn, Falcon, Lane, ErnieGlide etc. No cones or couplers allowed on standard transmissions. The clutchless units used in 2009 will be ONLY be allowed with weight penalty AND WITH WRITTEN CONSENT FROM USST TECH DIRECTOR. Consent form must be attained prior to race event weekend and MUST be in possession of crewchief at event.
- Reverse mount starter/bellhousing are illegal after 2009. No accessories may be driven off the front of the transmission (example: fuel pump, oil pump, power steering). The

reverse mount units used in 2009 will be ONLY be allowed with a 25 weight penalty in addition to clutch penalties AND WITH WRITTEN CONSENT FROM USST TECH DIRECTOR. Consent form must be attained prior to race event weekend and MUST be in possession of crewchief at event.

- Automatic Transmissions must be vented into a catch with a minimum 1 quart capacity. Catch can must be empty before each race. Press in vent tube should be removed, tapped, and a pipe fitting installed in transmission to attach catch can hose. Direct Drive with crank coupler okay (Bushore, TCI).

**REAR AXLE / SUSPENSION**

- Any stock passenger car, floater, or quick-change rear end allowed.
- Rear end units must be locked. Mini or full spools or welded rear ends are allowed.
- Steel or Aluminum Spools Only.
- Lockers or limited slip units allowed in 2010 with weight penalty.
- No Aluminum axle tubes.
- Mini Quick Changes are not legal. Minimum Ring Gear OD for Quick change is 8.8".
- Rear suspension may be 3-link, 4-link, or Truck arm.
- Rear end control arms may be aluminum.
- No torque absorbing devices allowed on Control Arms, 3rd links or Track Bars.
- Rear Lower Control arms must be equal length center to center of Rod ends within 1 inch.
- Minimum Rear Arm length is 29.5 inches center to center of rod ends (except on OEM chassis).
- Panhard bar or J bar are only Track Bars allowed.
- Rear track width 65" max.
- No stock axles on tracks larger than 1/3 mile.
- After 2010, a No Gun Drilled Axles rule will be reviewed.

**WHEELS**

- Any 15x10-inch racing steel wheel allowed.
- No bleed-off valves allowed.
- Wheel weights must be fastened by two methods clips and glue or adhesive and tape.
- 15x8 wheels will be allowed for some visiting truck classes but not recommended and are subject to inspection
- USST officials have the right to reject any wheel based on safety.
- Future rule under review: The same offset wheels must be used on all 4 corners of Fabricated Chassis. The backspacing will be between 3 inch and 5 inch.
- Steel Lug Nuts Only.

**ROLL CAGE**

Please note that the Rollcage specifications describe the baseline perimeter symmetrical chassis to establish a definition for the standard. Chassis with offset are allowed but may or may not incur weight penalties in the performance factors tables.

- Minimum roll cage must be 10 points of 1-3/4 inches X .095 inches.
- Cage halo must be near the roof line so driver has ease of entry and exit. Minimum Halo Height is 47.5 inches to bottom of Main Frame Rail To accommodate body mounting and driver access. Halo minimum outside width is 40 inches.
- The only exposed roll cage bars will be the support bars from halo to rear frame.
- Must have a minimum of 4 bars from cage to rear of frame; 2 bars from the top of halo and 2 bars from the middle area to frame.
- Upper Halo Minimum width should measure at least 40 inches at narrowest point. Maximum Halo Width 53 inches. USST approved bodies will accommodate a 53 inch halo width.
- Minimum halo length from front of roll bar to front or halo is 29.25 inches.
- Main Cage Left Front Down Tube to Right Front Down tube measured inside to inside (for ease of measuring) is a minimum 50 inches.
- Minimum Cage Height to Bottom of main frame rails is 47.5 inches.
- Rear Roll Bar to Front Cage Down Tube 41 inches minimum and 46 maximum as measured on frame rail (center to center of round tubing).
- Top Drivers Door Bar to Bottom of Frame Rail Minimum is 26.75
- For 2011: Minimum of four horizontal door bars (including top crossbar) on right and left side with two vertical bars between each horizontal bar. Lower horizontal bar or second horizontal must be attached to frame in two places with 1 3/4 .095 tubing. "X-ing" is not a substitution for any door bars. (See performance factors document)
- Rule under review beyond 2010: Minimum door bar width from left to right is 65.5 inches. Maximum door bar width is 70 inches to allow approved USST bodies. Door bars may not extend outside any of the 4 wheels. Right Side Door Bars must extend at least 2.75 inches outside of right main frame rail.

**SUSPENSION**

Please note that the Suspension specifications describe the baseline truck. The baseline is a symmetrical, perimeter, steering box truck. The most common chassis was used to establish a definition for that standard. Chassis with offset are allowed but measurements and features will determine if they incur weight penalties in the performance factors tables.

- Upper A-arms can be tubular or adjustable. Aluminum cross shafts OK except when noted for specific tracks.
- Only one shock allowed per wheel. No External Reservoir shocks. No Externally adjustable shocks. Shocks must be Steel Body. National Series Maximum Manufacturers List or catalog price for 2010 is $200.
- Weight-jacks (bolt-type only) on all four corners may be used.
- Non W-5 hubs must be steel.
- Steering quickeners are allowed.
- Adjustable ball joints may be used.
- Outer tie rod ends may be replaced with spherical rod ends. Tie rod sleeves, rod ends, and swaged tubes must be steel. Minimum tube ID is 5/8 inch. Minimum Rod ends 5/8.

- No hydraulic spring leveling devices.
- No Bump Stops.
- In further efforts to control cost, shocks and swaybars are under review but there will be no changes announced at this time.
- Spring Rate Rule:
  In an effort to control the cost associated with coil binding, the USST Rules Committee has voted to establish a minimum spring rate as the next step. The minimum rate allowed for front springs will be 500 pounds per square inch for conventionally mounted big springs and 250 pounds per square inch for coil over mounted springs. Springs will be subject to rating at any time. The testing procedure will be as follows:

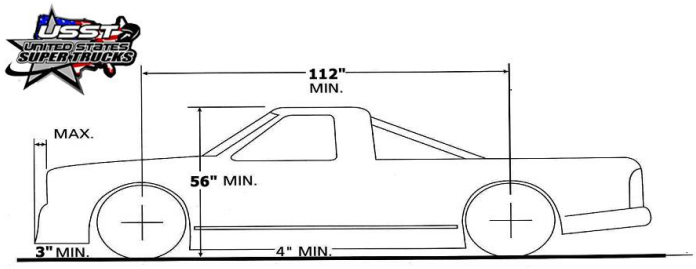
  The Spring will be removed from the vehicle.
  The Spring will be inspected must be a conventional coil of common manufacturer.
  The Spring will be placed in a rater.
  Make sure the top and bottom plates are parallel.
  Orient the springs the same way each time.
  Compress the springs to the preload as per tech official.
  Load the spring 1 inch.
  Record the Pressure #1.
  Compress the Spring 1 more inch.
  Record the Pressure #2.
  Subtract pressure #1 from pressure #2.
  Conventionally mounted "big" springs with less than 490 pounds of rate will be confiscated.
  Coilover mounted, or "coilover" springs with less than 240 pounds of rate will be confiscated.

**BODY**

- Any 1998 or newer Chevrolet, Ford, Dodge, or Toyota 1/2-ton, full-sized, conventional cab or extended cab pickup truck.
- Aftermarket bodies from approved manufacturers must be used. Approval must be obtained from USST to consider any other after-market body, nose, or tail.
- USST min frame height is 4 inches without driver.
- Minimum roof height is 56 inches measured 10 inches from center edge of windshield.
- Spoiler can only be mounted only on rear deck.
- Regular Cab: Maximum spoiler measurement from mounting point to top edge is 5 inches. Maximum spoiler width is 65 inches.
- Extended Cab: Maximum spoiler measurement from mounting point to top edge is 6 inches. Maximum spoiler width is 60 inches.
- Extended Cabs are new for USST. The long term legality of the Extended cab will be reviewed during 2009 and 2010. Extended Cab is legal for 2010 with potential weight adjustments pending analysis of performance and research.

- Spoiler may only have a two dimensional profile. No flaring allowed. No wicker bills. No Gurney lip. No Curved Spoilers.
- The bottom of the spoiler, at the bend, may not extend past the rear of the body.
- Spoiler will be square to cab as measured to rear window by 'X' method within a tolerance to be determined during 2010.
- No lateral and no vertical spoilers allowed.
- Front air dam allowed minimum height 3 inches.
- Maximum front air dam width will be announced per race track.
- No holes allowed in tailgate.
- Hoods must have positive fasteners installed, either a minimum of four (4) hood pins or two (2) hood pins and two (2) hinges.
- Full rear deck lids are mandatory. The rear of the lid must be able to open for inspection purposes.
- All damage to bodies shall be repaired by the next event or obtain approval from a USST official.
- An opening of 2.5 inches x 20 inches may be cut in the rear of the hood, centered behind air filter to allow air intake.
- A small notch, not to exceed 1.5 inches, on the far passenger side of the hood. This will allow the exiting of the overheating tube.
- Minimum Nose Clearance is 3 inches.
- Minimum body clearance is 4 inches.
- Maximum rear deck height is 39 inches as measured at the highest horizontal surface at front of the base of the spoiler.
- Minimum rear deck height will be reviewed and announced if set.
- Minimum Windshield angle is 35 degrees as measured in the center of the windshield 10 inches down from the edge.




## APPEARANCE

- A full Lexan/Polycarbonate windshield is required the top 8" must be painted black to simulate a visor. A rear window is required. Side wing windows are allowed, but window opening must be 20" minimum. Visor section of windshield will be used for USST drivers home state name and USST title sponsor.

- The maximum bumper thickness is .125 inches. Bumpers must be hidden behind nose and tail piece. Bumper ends must be capped or rounded to prevent unnecessary excessive damage. Must be round steel tubing with maximum OD of 1.75.
- Nerf bars are allowed on sides of truck only, but must be inside body.
- Lexan side rub rails allowed outside body.
- There must be the realistic appearance of headlights, taillights, and signal lights in their original locations. This may be accomplished by either paint or decals.
- Tires must be centered in wheel opening.
- Floor pan will extend the full width of cab with no gaps and minimal drain holes only.
- Full front and rear firewalls are mandatory and must extend the full width of the truck with no holes or gaps.
- Professional lettering and painting are required.
- One or two digit numbers only. No letters will be allowed unless approved by USST officials. Three-digit number must be approved in advance by the series director.
- A number of at least 18" or more in height must appear on both doors in a contrasting color. This means the number must be significantly darker or lighter than the base color, not just different color.
- Trucks must display roof numbers 24" high, readable from the right side for scoring.
- All numbers must be of uniform height. No "small" first or second digits to give the appearance of a different number.
- Numbers should be easily readable from 100 yards.
- Must have the driver's last name at least 3" tall on top of the driver's door.
- Gold, silver, or foil number decals are permitted
- Series decal locations are mandatory as shown prescribed by technical bulletin.
- Minimum race weight must be taped on the upper front corner of the driver's door.
- No "For Sale" signs on cars while racing.
- No decals with questionable language, symbols or signs.
- Must have truck number on right front passenger side headlight and on one rear taillight.
- Trucks must have hood, fenders, trunk lid, and bumpers in place to compete. Trucks that lose the above items during a race session may be allowed to compete at officials' discretion.
- All damage to bodies shall be repaired by the next event or obtain approval from a USST official.
- Rear down tube foils panels must be clear lexan with no lettering and must follow rear down tubes line from cab to deck.
- Tow hooks or accessible attachment points on frame rails are mandatory, front and rear, and must be within easy reach of safety crew.

**SAFETY**

- It is the responsibility of the driver to prepare a truck free from defects and in safe racing condition. It is the responsibility of the Car Owners, Drivers and Crewmembers to install, wear and maintain all safety equipment as specified by manufacturer's instructions. This includes, but not limited to, helmets, fires suits, racing suits, gloves, shoes, flame-

resistant underwear, flame-resistant head sock, head and neck restraint systems, driver's racing seat and safety belts.

- Head and Neck restraints are mandatory for all on track activity. HANS, Hutchens, and D-Cell are approved. Contact USST for approval of other models and supply make and SFI rating.
- All trucks must have approved SFI Specification 16.1 five point safety belt and shoulder harness no less than 3" in width. Both end of safety belt and shoulder harness must be fastened to roll bar with grade eight or better bolts; not less than 7/16" in diameter. The seat belts and shoulder harness must come from behind the driver. Submarine strap (2" minimum) mandatory. Seat belts and shoulder harness may be no more than three years old. Seat belts and shoulder harness should be replaced after a severe accident.
- Seats must be from recognized manufacturer and should be of .125 single wall or double wall aluminum construction. Headrests mandatory and must attach to seat. Rib supports or shoulder supports mandatory. Leg braces or padding mandatory. Driver's seat must be fastened to the frame/cage with at least 3 support rails. Each rail requires at least two Grade 8 3/8 bolts and with 1" washers on seat surface.
- Driving suit must be a SFI Specification 3.2 A/5 one or two piece multi-layer, full-coverage, fire-retardant uniform specifically designed for racing; fire retardant glove and shoes meeting Driver(s) uniform inspection is part of the Technical Inspection process and all uniforms, Practice and/or Race, must be presented for inspection at this time.
- Window nets are required and used at all times. Quick release or latch style mounting must be used and must release from top. Window net must be full size ribbon or mesh type. Window nets must be attached to roll bars only.
- Center of steering post recommended to be padded with at least 2" of resilient material.
- All trucks must have master kill switch within reach of driver and safety crew.
- All trucks must have an approved fire extinguisher within ready reach of driver and safety crew. Pressure type metal containers used as part of a fire extinguisher system will only be approved for installation and discharge in the driver's compartment in conjunction with the fire extinguisher system. The container cannot be concealed in any manner. Limit of one container for each fire extinguisher system. Fire extinguisher mounting brackets must be of the manufactured snap-band type with safety pin. No carbon tetrachloride fire extinguishers. Fire extinguisher must be of the air pressure or charged type.
- Each Team is required to have a Fifteen pound (15 lb) fire extinguisher in their assigned pit area.
- No person will be permitted to ride on outside of any Truck at any time.
- All trucks must run steel floorboard under the driver; metal firewalls. No tub type interiors.
- All cars must have a functioning two-way radio communication system between the driver and team members.

**FUEL & FUEL CELL**

- Bladder Type Fuel Cells are required in USST. Cells must be mounted with the factory supplied safety can or equivalent subject to inspection (normally 22 guage steel).
- 22 Gallons maximum size.
- Roll over valve or flapper valve required in vent.
- Cell must be encircled on the front, bottom, back, and top. Mounting brackets materials must be one of the following three: 1. Minimum of steel 14 guage 1 inch square tubing 2. Steel strap 2 inch wide and 1/8 inch thick. 3. Secondary outside containment can.
- Fuel cell may not be lower than 8.5". Lowest part of Fuel Cell, not brackets, will be measured when checking minimum fuel cell height.
- Cell and steel canister securely fastened to frame behind rear axle and centered in frame.
- Minimum thickness of 24 gauge sheet steel will be required for fuel cell canister. The only holes allowed will be four drain holes 1/2 inch in diameter.
- A minimum of two 2-inch steel straps must secure top and bottom of fuel cell canister. No Perforated straps.
- Gasoline is the only fuel allowed.
- No additives of any type may be added to fuel allowed.
- Only 1 gasoline filter may be used between the fuel cell and the fuel pump. No Glass or plastic filters allowed. The location and size of the filter must be acceptable to USST officials.
- Icing or cooling of fuel system will not be permitted in the pit or racing areas. Pressure systems will not be permitted. Any concealed pressure type containers, feed lines, or actuating mechanisms will not be permitted, even if inoperable. Icing, freon type chemicals or refrigerant may not be used in or near the fuel system.
- AN type fittings required on all fuel lines. Steel Braided hose recommended.
- Trucks seen overflowing fuel will be sent to pits for fuel removal and will restart on the back of the starting lineup.