

# N.S.R.A.

## North State Racing Association

### 2010 Bomber Rules

*This is intended to be an entry-level and inexpensive stock hobby class for the weekend racer.*

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#### 1 General

##### 1.1 Glossary

###### 1.1.1 OEM

Original Equipment Manufacturer: Manufactured by the original manufacturer.  
The part may not be modified in any way that affects the performance specifications.

###### 1.1.2 Stock

OEM, or after-market with performance specifications that are comparable to that of the OEM part.  
The part may not be modified in any way that affects the performance specifications.

###### 1.1.3 Technical Discretion

Inspection and assessment according to the spirit and intended purpose of the rules. The spirit, intended purpose, and safety concerns will always override the current wording of the rules.

###### 1.1.4 Abbreviations

**OD** Outer Diameter Tube or hole cross-section diameter measured from the outer edges.

**ID** Inner Diameter Tube or hole cross-section diameter measured from the inner edges.

###### 1.1.5 Measurement Units

A double-quote 2" inches

A single-quote 2' feet

ci volume in cubic inches

psi pressure in pounds per square inch

rpm revolutions per minute

A super-script circle 90° angle in degrees

Sound level 90dBA A-weighted decibels

A measure of sound weighted by how it affects the human ear. 0 dBA is barely not hearable in a quiet room, and 140 dBA will cause pain.

1.2 Rule changes from the previous year are highlighted in gray (Spelling, wording, and format changes are not).

1.3 All rules are subject to Technical Discretion. A car that is found to be illegal will have a ticket written and must fix the problem in the time stated. If the problem affects performance, a penalty weight will be assigned in a specified position until the problem is fixed. If the problem is not fixed in the time allotted (tech discretion), additional penalties will be applied. These may include more weight, parts confiscation, or even re-classification as a Street Stock.

1.4 Bombers race with both a driver and a passenger sitting side-by-side and facing forward in the car.

1.5 The passenger must be at least 18 years of age. A photo ID is required of passengers.

1.6 All parts must be OEM unless otherwise specified in these rules.

1.7 No traction control (TC / ETC) devices are allowed in any part of the car.

#### 2 Model

2.1 **Year** 1960 to 2010

2.2 **Wheelbase** 108" to 128", ±½" of the stock wheelbase

2.3 **Includes** American made full size passenger cars

Station Wagons

El Caminos

Rancheros

2.4 **Excludes**

Pickups

Convertibles

4-Wheel drives

Vans

#### 3 Weight

3.1 **Minimum Total** 3,300 lbs. At all times.  
3,400 lbs with shortened door plates (see §7.3.7.6).

3.2 **Maximum Left Side** 53%

#### 4 Chassis

4.1 All parts must be OEM and of the same manufacturer.

4.2 No modifications or cutting unless otherwise specified.

- 4.3 No modification of the cross-members.
- 4.4 The chassis may not be stiffened or reinforced in any way except as specified.
- 4.5 May have a front hoop made from up to 1½" OD .125" thick tubing, with no more than two (2) uprights. This is meant to be stiff enough to protect the radiator, but not so stiff that it becomes a car damaging battering ram.
- 4.6 May have a rear hoop made from up to 1½" OD .125" thick pipe or tubing, with no more than four (4) uprights. This is in addition to the required fuel cell guard (see §9.2.7).
- 4.7 Must have exposed tow hooks or straps on the front and rear. Chain or cable must be strong enough for a quick tow around or off the race track.

## 5 Suspension

5.1 All suspension parts, mounts, and positions must be OEM unless otherwise specified.

5.2 Bushing may be stock or aftermarket.

### 5.3 Springs

- 5.3.1 All springs may be stock, or after-market with a minimum diameter of 5".
- 5.3.2 Adjustable spring buckets are allowed on the front suspension only.
- 5.3.3 Shims are allowed.
- 5.3.4 No weight jacks.
- 5.3.5 No lengthened rear shackles.
- 5.3.6 Excessive camber of front end not allowed (Tech Discretion).

### 5.4 Shocks

- 5.4.1 Must be stock.
- 5.4.2 Must be mounted in the stock locations with OEM mounts and fasteners.

### 5.5 Sway Bar

- 5.5.1 Must be stock.
- 5.5.2 All thread allowed.
- 5.5.3 Bolts allowed.

## 6 Body

- 6.1 The make and model of the body and all parts must be the same as the chassis.
- 6.2 Must be complete with all stock body parts, including the hood.
- 6.3 No modifications or cutting unless otherwise specified.
- 6.4 Floor pan and firewall must remain stock.
- 6.5 Must be stock height from the rocker panel to the roof.
- 6.6 Must stand, with driver and passenger, a minimum of 5" from the ground to the frame rail at the driver side front door seam.
- 6.7 All original flanges must be maintained.
- 6.8 After-market rear tail pieces are not allowed.
- 6.9 Anything that may shatter or break off during the normal course of racing, such as lights and their socket assemblies, all chrome and trim, or plastic grills must be removed.
- 6.10 Interior must be stripped.
- 6.11 The hood and deck lid interiors may be stripped for safety.
- 6.12 **Doors** must be welded, bolted, chained, or riveted shut. Door skins may be .040" thick steel or aluminum sheet metal.
- 6.13 **Inner front fender** may be removed.
- 6.14 **Wheel opening tire clearance** must be within 6" of the tire.
- 6.15 **Rear Spoiler**
  - 6.15.1 Optional, but must be a single blade, may not exceed 6" in height, may be no wider than the stock quarter panels, and must be attached directly to the body (no openings between the blade and the body).
  - 6.15.2 No forward bracing or side panels.
- 6.16 **Bumpers**
  - 6.16.1 Must be OEM. After-market front noses allowed.
  - 6.16.2 Interchanging the same type is allowed.
  - 6.16.3 No cutting or lightening.
- 6.17 **Rub Bars**
  - 6.17.1 Optional single horizontal 1" wide x 2" high bar for each side to protect the bodywork.
  - 6.17.2 Must be mounted flush to the body.
  - 6.17.3 End mount points must be within 6" from the end of the bar.
  - 6.17.4 Ends must be closed and angled or turned into the body.
  - 6.17.5 No sharp edges or protruding ends that might be hooked.
- 6.18 **Windows**
  - 6.18.1 **Windshield**
    - 6.18.1.1 Must be safety glass, Lexan, or metal screen mesh.
    - 6.18.1.2 Must be braced by an inside vertical metal strap at least 1" wide x 1/8" thick mounted as close as possible to the center of the windshield.
    - 6.18.1.3 Safety glass must be additionally secured by 4 brackets a minimum of 1" wide x 4" high x 1/8" thick.
  - 6.18.2 Rear or rear-quarter window openings must be either open or covered with screen mesh.
  - 6.18.3 Screen mesh size must be 1/4" to 3/4".

## 6.19 Paint

6.19.1 Any image or content visible on the car is subject to the approval of the track officials.

### 6.19.2 Car Numbers

6.19.2.1 Must be a contrasting color and easily readable by the track officials. Do not use reflective or silver paint or tape (like duct tape) as it can not be seen at night.

6.19.2.2 Top (oriented to the right side) and side numbers must be at least 18" high with a line width of at least 4", and must be preceded by a 6" top-aligned letter "B". The preceding 'B' is in addition to any letter used after the number to distinguish it from a car that already has that number.

6.19.2.3 Front and rear numbers are required and must be at least 6" high with a line width of at least 1".

## 7 Roll Cage

7.1 The purpose of the roll cage is to protect the driver and passenger from injury during a crash.

### 7.2 Material

7.2.1 Roll bar tubing from 1½" to 1¾" OD .090" thick.

### 7.3 Design

7.3.1 A full four-point cage over and around both the driver and the passenger.

7.3.2 One (1) dash bar.

7.3.3 Two (2) horizontal bars behind the seats.

7.3.4 One (1) diagonal bar behind the seats from the top corner to the opposite bottom corner of the cage.

7.3.5 Two (2) bars from the top rear of the car to the rear frame or trunk floor.

#### 7.3.6 Door Bars

7.3.6.1 Four (4) horizontal and two (2) vertical bars on each door.

7.3.6.2 The door inner panels may be removed to fit the door bars, but the bars must be flush with the inside of the exterior skin.

#### 7.3.7 Door Plates

7.3.7.1 The driver and passenger sides must have door plates installed between the door bars and the door skin.

7.3.7.2 Made from at least ⅛" (.125") thick steel

7.3.7.3 Must at least completely cover the door bar openings from the top to the bottom door bar, and from the rear to the front upright posts.

7.3.7.4 If welded to the door bars, can be separate and must have 3" of weld for every foot.

7.3.7.5 If bolted to the door bars, must be a single plate and mounted with at least 6 grade 5 ⅜" bolts.

7.3.7.6 Must be visible from the interior for inspection.

7.3.7.7 Door plates that do not exactly conform but are deemed to be safe may run, but the car must weigh a minimum of 3,400 lbs.

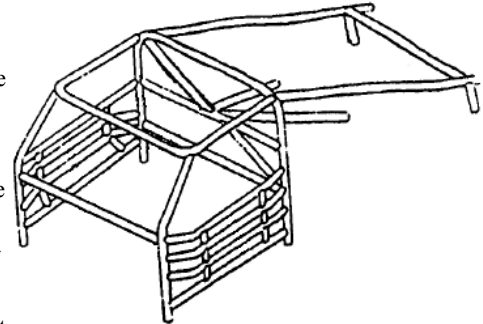
7.3.8 Gussets for all tubing angles are **strongly** recommended, and may be required by technical discretion.

7.3.9 Design, material, gussets, and welds are subject to technical discretion.

### 7.4 Mounting

7.4.1 On a full frame chassis, each vertical cage and door post must be welded to a frame rail.

7.4.2 On a partial frame or unibody chassis, each vertical cage and door post must be welded to a 6" square x ¼" thick mounting plate. The mounting plates must be bolted through the floor pan to a matching plate underneath with at least four (4) ⅝" (grade 5) bolts with washers.



An example of a Bomber roll cage.

## 8 Engine

### 8.1 Block

8.1.1 No aluminum blocks or heads.

8.1.2 No dry sump oil systems.

8.1.3 No blowers.

8.1.4 Must be in the stock location.

8.1.5 Solid motor mounts OK.

### 8.2 Specifications

8.2.1 **Cylinder compression maximum** 175 psi

8.2.2 **Manifold vacuum minimum** 14.5" @ 800 rpm idle

8.2.3 **Maximum displacement** 360 ci

### 8.3 Manifolds

8.3.1 No modifying or porting is allowed.

#### 8.3.2 Intake

8.3.2.1 May be OEM cast-iron,

8.3.2.2 or Edelbrock aluminum Performer manifold: Chevrolet #2101, Ford #2121, Dodge #2176,

8.3.2.3 or aluminum intake GM #12366573 on a sealed 88958602 crate motor.

8.3.2.4 Must have a ¼" vacuum port below the carburetor for vacuum testing.

8.3.3 **Exhaust** Must be stock cast-iron.

### 8.4 Fuel Delivery

8.4.1 Any OEM carburetor.

#### 8.4.2 Restrictor Plate

8.4.2.1 Must use an N.S.R.A. designated restrictor plate placed on the manifold or above an adapter plate, with a non-tapered spacer plate above.

8.4.2.2 Nothing that enhances the venturi flow below the restrictor plate is allowed.

8.4.3 Holley 4412 2-barrel allowed.

8.4.4 No performance carburetors.

8.4.5 No center pivot Holley 4-barrels.

8.4.6 No fuel injection.

8.4.7 No electric fuel pumps.

8.4.8 Must have at least two throttle return springs anchored in two different locations in opposite directions.

### 9 Fuel and Fuel System

#### 9.1 Fuel

9.1.1 Gasoline only.

9.1.2 No Nitrous (N<sup>2</sup>O), or any other fuel or combustion additive.

#### 9.2 Fuel Cell

9.2.1 Must be completely enclosed in a metal container made of at least 22 gauge.

9.2.2 Must be mounted to the car in a very secure manner. Examples include mounting all four (4) top edges, or with four (4) under-slung metal straps at least 1" wide x 3/32" thick or equivalent. The mounting is subject to technical inspection and should remain secure even when damaged.

9.2.3 The mounting area may be reinforced with 2" x 2" box tubing.

9.2.4 No plumbers tape, chain, or bungee cords as mounting materials.

9.2.5 Must be no lower than 10" from the ground.

9.2.6 Must have an electrical grounding wire from the fuel cap plate on the fuel cell to chassis ground.

9.2.7 Must have a fuel cell guard made of at least 1/2" OD .095" thick tubing that is as wide and as low as the fuel cell.

9.2.8 No rubber hose from filler spout to tank.

9.2.9 The gas tank vent must have a check valve.

9.2.10 If fuel lines are run through the driver's compartment, they must be enclosed in a protected conduit, such as a steel or race-rated tube.

#### 9.3 Gas Cap

9.3.1 Must be strapped or chained to the fuel cell.

9.3.2 Must be clearly marked with the car number.

9.3.3 No snap open types.

### 10 Radiator / Cooling System

10.1 An after-market aluminum radiator is allowed.

10.2 Only water is allowed in the cooling system. No anti-freeze, coolant, or any other liquid that may slick up the track when spilled.

10.3 Must have a radiator overflow catch can of at least one (1) gallon capacity. No plastic jugs (anti-freeze type).

10.4 Valve cover and transmission breathers are recommended.

### 11 Electrical System

#### 11.1 Battery

11.1.1 Must be enclosed inside a covered and vented box that is mounted on the floor of the driver compartment.

11.1.2 The battery box must be mounted with at least two (2) 3/8" or larger bolts attached to at least a 1/4" x 1/8" metal strap across the top.

11.2 No communication devices are allowed.

#### 11.3 Transponders

11.3.1 Must be located 13' ( $\pm 1$ ") from the tip of the front nose of the car with a clear sight of the track surface (sheet metal will degrade the signal). The mount must be  $\pm 1$ " so that the transponder log matches what is seen by the scorekeepers and fans.

11.3.2 To pass technical inspection, the transponder must be in place prior to inspection and must remain in working condition for the rest of the event. **Measure and adjust your transponder mount before every event.**

11.3.3 If the bumper-to-transponder distance changes for any reason (like damage, repair, or modification), either the front nose or the transponder mount must be adjusted to re-establish that distance before every event.

### 12 Steering

12.1 The steering column must not have a locking device.

### 13 Drive Train

#### 13.1 Transmission

13.1.1 Must have at least two (2) forward and one (1) reverse gearings in working order.

13.1.2 Cars with an automatic transmission must use a stock-type torque converter.

#### 13.2 Clutch

13.2.1 Must be a stock-type single-disk clutch with a stock-type pressure plate.

13.2.2 Any bell housing around the clutch must be an approved explosion-proof type.

### 13.3 Driveline

13.3.1 Must have two (2) driveline hoops, near both the front and rear universal joints, that fully enclose the driveline (360°) and will keep a broken driveline from falling off. They must be at least as strong as 2" wide x 1/8" thick metal straps.

13.3.2 The driveline must be painted white.

### 14 Rear End

14.1 All parts must use stock mountings.

#### 14.2 Differential

Differentials must be functionally open. No fully or partially locked, or dynamically locking rear end systems of any kind are allowed.

#### 14.3 Axle

14.3.1 No floaters.

14.3.2 No 3/4 ton.

### 15 Exhaust System

15.1 Exhaust pipes must be a maximum of 2 1/2" OD the entire length from manifold to the end.

15.2 The exhaust pipe must run under the floor boards and extend past the driver compartment.

15.3 Must have a muffler that dampens the sound volume to a maximum of 90dBA at 100' (Violators will be fined or penalized).

15.4 You will be black flagged if you lose a muffler.

### 16 Wheels

16.1 Any 15" diameter steel after-market made with 3/16" steel centers.

16.2 Maximum width of 8".

16.3 Left wheels may be stock but may not exceed the 8" width.

16.4 Must have 1" lug nuts.

16.5 No acorn lug nuts.

16.6 1/2" studs are recommended.

16.7 Brakes All four brakes must be in good working order for any race.

#### 16.8 Tires

16.8.1 Mastercraft A/S IV Steel Belted Radial P225/70 R15 440 Treadwear from an N.S.R.A. approved source.

16.8.2 Must have tread in safe condition.

16.8.3 No slicks.

16.8.4 No recaps.

16.8.5 No altering, conditioning, or softening.

### 17 Safety

17.1 All safety equipment is subject to technical discretion.

#### 17.2 Interior

17.2.1 The interior compartment must be completely sealed from the track with no open holes in the floor.

17.2.2 All padding must be resilient and effective.

17.2.3 Roll cage bars around the driver or passenger must be padded.

17.2.4 The steering wheel center must be padded.

17.2.5 Driver and passenger windows must have SEMA approved window nets mounted securely and for quick and easy removal from either the inside or the outside.

17.2.6 Must have a fire shield between the drivers compartment and the fuel cell compartment made from at least 24 gauge sheet steel.

17.2.7 A motor kill switch must be installed between the driver and the passenger. It must be clearly marked, easily identifiable, and easily accessed by the driver, passenger, or anyone reaching through from the driver or passenger window.

17.2.8 Must have at least one (1) fire extinguisher of at least 2 3/4 lb., or a commercial fire system, mounted in easy access of the driver and passenger, and with gauges or status indicators readable from either the driver or passenger window.

#### 17.3 Driver and Passenger Equipment

17.3.1 Must have high backed aluminum racing seats.

17.3.2 Head and neck restraints are required for all racers aged 13 to 18, and are **strongly** recommended for all others.

17.3.3 Must have a five (5) point SEMA approved racing harness at least 3" wide for both the driver and the passenger.

17.3.4 All belts must have the manufacturer's date tag, be no older than five (5) years, and in good and serviceable condition.

17.3.5 Both driver and passenger must wear a 1995 or newer Snell approved racing helmet with goggles or a face shield.

17.3.6 Both driver and passenger must wear a complete (top and bottom) SFI approved fire suit in serviceable condition. There can be no holes or rips.

17.3.7 Fire proof gloves and shoes are strongly recommended.

### 18 Policy Statements

18.1 Any modifications not covered in these rules will not be allowed unless approved by Speedway Officials

18.2 Equipment will not be considered legal simply because it went through inspection unobserved or because a rule has not been written against it.

18.3 Cars are subject to inspection at any time.

18.4 Officials reserve the right to confiscate and hold any parts and/or equipment not conforming to the rules

18.5 Officials reserve the right to judge, decide, and establish what constitutes a legal part of car.

18.6 Weight may be added or adjusted at any time to benefit or equalize the racing program.

**18.7 OFFICIAL'S DECISIONS ARE FINAL**