

New England Hillclimb Series

Classifications • 2004

Changes to the 2003 rules are indicated in ***bold italic***.

Part 1 – Prepared Cars

The following are guidelines for the New England Hillclimb Series. They are meant to be a fair and equal grouping of cars in a competitive nature. All cars are classed as though they were prepared to the ultimate state. The basic dividing point between Prepared and Street Prepared/Unprepared cars is race tires.

FORMULA LIBRE – *Prepared and Formula/SportsRacing cars not otherwise legal for Formula II or Prepared 1. Any car legal for any NEHA class (not just prepared) may bump to Formula Libre at the entrants request.*

FORMULA II – Formula or sports racing cars under 2050cc with naturally aspirated production-based non-DOHC engines. Any prepared car can bump into this class at the entrant's request, but the car must remain as bumped for the remainder of the season.

PREPARED 1 – Cars with a displacement of 4501cc to 8000cc.

PREPARED 2 – Cars with a displacement of 2201cc to 4500cc.

PREPARED 3 – Cars with a displacement of 1601cc to 2200cc, and SCCA roadracing-legal Formula Vee.

PREPARED 4 – Cars with a displacement of 1600cc and less.

Formula and sports racing cars are defined as non-production cars with the engine entirely ahead of the rear wheels and behind the driver's seat.

Displacement Factors

The following factors will be applied to engine displacements for determination of Prepared classes.

- A. Supercharging, turbocharging, or nitrous oxide induction: Multiply actual displacement by 2.
- B. Rotary engines: Multiply rated displacement by **1.62**. Factored displacement from A and B will apply as actual displacement for use of the following factors:
- C. Cars with a throttle plate area of less than 0.65 mm²/cc : Deduct 12% of actual displacement.

- D. Cars competing on tires meeting the requirements of Sec. 2.C.4 (DOT tires): Deduct 12% of actual displacement.
- E. Cars configured for production class racing: Deduct 12% of actual displacement.
- F. ***Four Wheel Drive: Multiply actual displacement by 1.25.***

Classes recognized as production classes include SCCA IT and AS; production classes in SCCA, EMRA, and SVRA; and most Street Stock classes. Criteria for recognition of existing classes, or for use of this factor on cars not originating in these classes, are retention of all-original body, frame, floors, and firewalls; use of all original control arms and original suspension geometry; original configuration of engine, in stock position.

Part 2 – Unprepared and Street Prepared Cars

Unprepared

All cars shall be as produced, available in the U.S., and at least 500 made by the manufacturer. Must be capable of passing a Vermont State Vehicle Inspection. No stock equipment or parts may be removed unless they were available as an option on that particular vehicle. The only exception is removal of the A/C system. Some interior parts may be minimally altered (but not removed) to allow installation of safety equipment. The engine is to be the original type and size for that year car. Other than the air filter and its housings the induction system may not be modified to allow more air into the engine, such as oversize throttle bodies, carbs, or intake manifolds. No modifications to the exhaust manifold. The exhaust system may be replaced with a "cat-back" system (where applicable) that runs in the stock location and exits in the stock location.

Bolt-on bracing and minor suspension reinforcements that require no cutting or fabrication for installation are allowed. Springs must be on original seats.

Rim size may be changed. Tire size is free. (Fender lip may be flattened to help prevent tire chafing.) Tires must be DOT approved, and a treadwear rating below 50 is not allowed.

Street Prepared

This category is based on stock production vehicles that are easily recognized as such, and must have operational lights, horn, glass, wipers, mirrors, door handles. The following items may be removed: emissions equipment, sound deadening, sound system, head liner, floor covering, trunk area covering, rear seating (provided that proper separation remains or is installed between driver and fuel area). Removal in excess of the above invokes the excessive lightening penalty. Plastic side and rear windows will invoke the excessive lightening penalty.

Relocation of accessories, batteries, fuel system, electrical components is allowed, provided that the exterior of vehicle remains as produced.

Interchange of production options within the model is free (while adhering to the adjustments from the norm section). Engine/ driveline modifications are allowed.

Rim size may be changed. Tire size is free but the tread may not be seen from above. Tires must be DOT approved. Wheel openings shall retain their original contour when viewed from the side.

The above paragraphs do not void any applicable safety requirements as listed in the Technical and Safety Requirements.

Class Determination

Classes are determined within a category by the ratio of adjusted engine displacement (in cubic centimeters) to vehicle weight (in pounds).

Curb weights are those published in the N.A.D.A. used car dealer guide, if available, or on the vehicle manufacturer's tag if equipped and not tampered with. If the tag weight is used, it will be given in gross vehicle weight and must be adjusted. Subtract 175 lb per occupant, from the GVW to get curb weight.

Actual displacement is adjusted by factors from the "norm" and then divided by the curb weight. (Norm = 2 valves and 1 injector per cylinder normally aspirated, in-line configuration.) This number will be used to class the car. Note: Rotary displacement is doubled prior to applying factors.

The tech inspectors are empowered to inspect your vehicle and personal equipment for general safety for participation at our events. Tech inspectors are NOT the classification committee.

There are 8 classes based on modifications and adjusted cc/lb:

UNPREPARED CLASSES

Unprepared 1	1.550 and above cc/lb
Unprepared 2	Less than 1.550 cc/lb
Unprepared 3	Less than 1.000 cc/lb
Unprepared 4	Less than 0.840 cc/lb

STREET PREPARED CLASSES

Street Prep 1	1.500 and above cc/lb
Street Prep 2	Less than 1.500 cc/lb
Street Prep 3	Less than 1.060 cc/lb
Street Prep 4	Less than .900 cc/lb

To determine your car's class, multiply your car's displacement by each applicable adjustment on the next page. Take the sum and divide this by the car's weight to come up with your class factor. Apply this number to the chart above. Then come run and have fun!

In addition:

- There will be no penalty for a roll cage regardless of how it is tied in to the body structure, or for racing seats.
- Updating or backdating within the model will not be penalized (factors will be assessed after the changes).
- Emission requirements shall not be considered in the enforcement of these rules.
- No kit cars and no engine swaps will be allowed in Unprepared. In Street Prepared and Prepared, kit cars and engine swaps will be classed where deemed most competitive.

Adjustments to the displacement for variations from the norm will be:

Variable valve timing	25%
Four-wheel drive	25%
Wheel size (diameter and width)	1% per 0.5 inch
Tire treadwear rating (50–150 U Class) (< 100 SP Class)	8%
Non-stock antiroll bars (SP only)	5%
Non-stock springs (SP only)	5%
Modified suspension (SP only) (other than shocks, alignment, and bolt-on reinforcement)	5%
6-point roll cage (U Class)	– 5%
6-point roll cage (SP Class) *	– 20%
Intact interior (SP only with full cage)	– 5%
Excessive lightening (SP only)	10%
More than 2 valves per cylinder **	10% each
More than 1 camshaft per bank of cylinders	5%
V type engine configuration	10%
1 venturi or injector per 4 or more cylinders	– 20%
1 venturi or injector per 2 cylinders	– 10%
Non-stock exhaust manifold (SP only)	10%
Non-stock induction (SP only)	10%
Supercharger or turbocharger	30%
Intercooler	25%
Excessive sound (over 96 dB) at 50 feet	15%
Nitrous oxide (mandatory fire system) (SP only)	+ 1 Class

* The 20% in Street Prepared is intended to be an incentive to install a cage, not to be a performance adjustment. The percentage was chosen to make the point that if you want to be competitive, you need a cage. The class breaks are designed around cars with cages installed.

** Stratified charge valves not included.