

New England Hillclimb Series

Classifications • 2024

Additions to the 2023 rules are indicated in ***bold italic***, sections 2,3,4, and 5 were ***completely reorganized***.

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 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. **Any car P/S/U may bump up to a higher class within the given category (U/S/P) provided that an AWD/4WD doesn't bump up into a 2WD class.**

1. FORMULA LIBRE

A. Class Requirements

1. Any car legal for any NEHA class may bump to Formula Libre (FL) at the entrant's request.
2. Cars in Formula Libre must be legal for some other NEHA class with the exception that cars not legal for Prepared because of engine displacement or tech rules 2.BB.1 and 5.FF.1 are legal in Formula Libre.

2. PREPARED

A. Displacement Determination

1. Actual displacement is the total physical volume of all cylinders in cubic centimeters (cc).
2. For a side-port rotary engine, use the displacement rated by the manufacturer and multiply by 1.62 to get actual displacement.
3. For supercharging, turbocharging, or nitrous oxide induction, multiply the actual displacement above by 2 to get modified displacement.

B. Naturally-aspirated cars use actual displacement, otherwise (3 above) use modified displacement for the following adjustments to determine Prepared displacement:

1. 4WD or AWD: Add 25% of displacement.
2. Cars competing on tires that are DOT approved (DOT label on sidewall): Subtract 12% of displacement.
3. Cars with a total throttle plate area of less than 0.65 mm²/cc: Subtract 12% of displacement.
4. Cars configured for production class racing (see below): Subtract 12% of displacement.

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.

C. Prepared Class Determination

1. Prepared 1 (P1): Prepared displacement of 4501cc to 8000cc.
2. Prepared 2 (P2): Prepared displacement of 2201cc to 4500cc.
3. Prepared 3 (P3): Prepared displacement of 1601cc to 2200cc.
4. Prepared 4 (P4): Prepared displacement of 1600cc or less.

3. STREET PREPARED

A. Class Requirements

1. 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, bumpers, bumper reinforcement bars (in good condition OEM or equivalent), both front seats, heater and dashboard.
2. Updating or backdating within the model will not be penalized (factors will be assessed after the changes).
3. Kit cars or engine swaps will be classed where deemed most competitive.
4. 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.
5. Doors may not have any structure removed causing them to be excessively lightened – specifically the intrusion bar, outer framework and basic structure of the door must remain intact.
6. The floor and trunk area must remain intact and in stock location. Any modifications to the floor or trunk area must be sealed as good as the factory original.
7. All exterior body panels must appear as stock and remain in place (fender flares are free).
8. Relocation of accessories, batteries, fuel system, electrical components is allowed, provided that the exterior of vehicle remains as produced.
9. Interchange of production options within the model is free.
10. Engine and driveline modifications are allowed.
11. Rim size may be changed.
12. Tire size is free but the tread may not be seen from above. Tires must be DOT approved (DOT label on sidewall).
13. Wheel openings shall retain their original contour when viewed from the side.
14. A roll cage may be installed.
15. Racing seats and harnesses may be installed.
16. The above items do not void any applicable safety requirements as listed in the Technical and Safety Requirements.

4. UNPREPARED

A. Class Requirements

1. All cars shall be as-produced, available in North America, and at least 500 made by the manufacturer.
2. No kit cars and no engine swaps will be allowed in Unprepared.
3. Must be capable of passing a Vermont State Vehicle Inspection.
4. Updating or backdating within the model will not be penalized (factors will be assessed after the changes).
5. 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.
6. Some interior parts may be minimally altered (but not removed) to allow installation of safety equipment.
7. The engine is to be the original type and size for that year of car.
8. 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.
9. A piggyback computer that can modify the mass air flow or MAP sensor is illegal.
10. 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.
11. Bolt-on bracing and minor suspension reinforcements that require no cutting or fabrication for installation are allowed.
12. Springs must be on original seats.
13. Rim size may be changed.
14. Tire size is free. Tires must be DOT approved (DOT label on sidewall), minimum treadwear rating 50.
15. Fender lip may be flattened to help prevent tire chafing.
16. OEM flexible brake lines may be replaced with aftermarket or motorsport braided stainless steel lines.
17. A roll cage may be installed.
18. Racing seats and harnesses may be installed.

5. UNPREPARED AND STREET PREPARED CLASS DETERMINATION

A. Class Calculation Method

1. Some classes in Unprepared and Street Prepared are limited to two-wheel drive (2WD) vehicles.
2. Classes are determined within a category by the ratio of adjusted engine displacement (in cubic centimeters) to vehicle weight (in pounds).

3. 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 GVWR to get curb weight.
4. Side-intake-port Wankel rotary engine manufacturer-rated displacement is multiplied by 1.62 (to give actual displacement) prior to applying adjustment factors.
5. To determine your car's class, multiply actual displacement (in cc) by each applicable adjustment under 5.B. (Street Prepared) or 5.D. (Unprepared) below. Sum up the adjustments (adding the positive and subtracting the negative) and add this total to the actual displacement, then divide by the car's weight to get a value in cc/lb. Apply this value to the table in 5.C.(Street Prepared) or 5.E. (Unprepared), noting whether 2WD or 4WD/AWD.

B. Street Prepared Adjustment Factors (note whether positive or negative to add or subtract adjustment)

1. Variable valve timing 25%
2. Four-wheel drive or AWD 25%
3. Wheel size difference (diameter and width) per .5 inch 1%
4. Tire treadwear rating less than 100 8%
5. Non-stock anti-roll bars 5%
6. Non-stock springs 5%
7. Modified suspension 5% (Other than shocks, alignment, and bolt-on reinforcement.)
9. 6-point (or more) roll cage -20%
10. Intact interior (only with full cage) -5%
11. Excessive lightening 15%
12. More than 2 valves per cylinder 10% each (Stratified charge valves not included.)
14. More than 1 camshaft per bank of cylinders 5%
15. V type engine configuration 10%
16. 1 venturi or injector per 4 or more cylinders -20%
17. 1 venturi or injector per 2 cylinders -10%
18. Non-stock exhaust manifold 10%
19. Non-stock induction 10%
20. Turbocharger 30%
21. Supercharger 25%
22. Intercooler 25%
23. Excessive sound (over 96 dB) at 50 feet 15%
24. Nitrous oxide (mandatory fire system) plus 1 Class
25. Diesel -25%

C. Street Prepared Classes

1. Street Prepared 1 (S1): 1.500 or above cc/lb
2. Street Prepared 2 (S2): 2WD 1.500 or above cc/lb
3. Street Prepared 3 (S3): 1.060 to 1.499 cc/lb

4. Street Prepared 4 (S4): 2WD 1.060 to 1.499 cc/lb
5. Street Prepared 5 (S5): 0.900 to 1.059 cc/lb
6. Street Prepared 6 (S6): Less than 0.900 cc/lb

D. Unprepared Adjustment Factors (note whether positive or negative to add or subtract adjustment)

1. Variable valve timing 25%
2. Four-wheel drive or AWD 25%
3. Wheel size difference (diameter and width) per .5 inch 1%
4. Tire treadwear rating (50–150) 8%
5. 6-point (or more) roll cage -5%
6. More than 2 valves per cylinder 10% each (Stratified charge valves NOT included.)
7. More than 1 camshaft per bank of cylinders 5%
8. V type engine configuration 10%
9. 1 venturi or injector per 4 or more cylinders -20%
10. 1 venturi or injector per 2 cylinders -10%
11. Turbocharger 30%
12. Supercharger 25%
13. Intercooler 25%
14. Excessive sound (over 96 dB) at 50 feet 15%
15. Diesel -25%

E. Unprepared Classes

1. Unprepared 1 (U1): 1.550 or above cc/lb
2. Unprepared 2 (U2): 2WD 1.550 or above cc/lb
3. Unprepared 3 (U3): 1.000 to 1.549 cc/lb
4. Unprepared 4 (U4): 2WD 1.000 to 1.549 cc/lb
5. Unprepared 5 (U5): 0.840 to 0.999 cc/lb
6. Unprepared 6 (U6): Less than 0.840 cc/lb

6. ELECTRIC VEHICLES

A. Class Requirements

1. Electric vehicles must use only electric power during racing. Motor(s) must be powered only by a charge storage device (batteries, capacitors, other charge accumulators), or by fuel cell. A hybrid electric vehicle (e.g., Toyota Prius) may be raced in electric-only mode.

B. Electric Vehicle Class Determination

1. Unprepared Electric (UE) Electric class is for unmodified electric vehicles built by a recognized manufacturer to U.S. DOT standards.
2. Prepared Electric (PE) class is for modified, converted, or custom electric vehicles, and must comply with the technical and safety rules for prepared electric vehicles.

7. RALLY SPRINT

A. Class Requirements

1. Properly Rally Logbooked cars only-includes NASA Rally, RA, FIA, CARS, ARA. Rally Sprint cars do not need to be registered/street legal as there are no transits.
2. Driver and co-driver must have all safety gear required by Logbook's sanctioning body. Driver and co-driver must be as listed on the entry. No Rally license required.
3. Tires: Must be DOT tires or Tarmac Rally Tires. Slicks are disallowed: "slicks" are defined as any tire that does not have a minimum of 1.6mm (2/32") tread depth over at least a 17% void area.
4. Any rule not directly addressed by the rally sprint class rules defaults to NEHA SP class rules. (Example: all cars with a kill switch must have an air horn installed)

B. Rally Sprint Class Determination

1. Class R1 - Rally 1 - Turbo/supercharged/high displacement cars. AWD turbo cars in R1 must use a turbo restrictor in accordance to current US rally regulations.
2. Class R2 – Rally 2 - Non-turbo cars.

8. BRACKET

A. Class Requirements

1. Any car legal for any NEHA class may bump to Bracket class at the entrant's request.
2. Cars in Bracket are subject to a bracket time which is 5 seconds more than the breakout time for the course.
3. If the driver of a Bracket class car gets a time that is less than the bracket time the driver will receive no time (NT) in the results.
4. Bracket class cars that are subject to the breakout rule (Tech E.2.b) are still subject to that rule if they run less than the breakout time for the course.

B. Bracket Class Determination

1. Class B – Bracket – The Bracket (B) class is the only Bracket class and is used for all entrants.