Spec E9X Regulations

2025 V1.0 EDITION ©

 Sections highlighted in yellow are still to be determined. These Rules are subject to change.

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Contents

1. Introduction

1. These regulations govern Spec E9X Series racing events held throughout North America.

2. The Spec E9X Series is a competitive, fun, safe, affordable racing series, focused on road racing with limited modifications and specified required components. The series showcases the driver's skills and the components manufacturers, distributors, and dealers.

3. Only modifications specifically authorized are allowed; competitive adjustments are not allowed. **Other than the modifications specifically allowed in these rules, every part of the car must remain as it came from the factory**.

4. These regulations are 'living' and subject to changes at any time. The stability of these rules allows for this provision as opposed to the typical annual rules update with wholesale changes that occur on a calendar year basis.

5. Changes will have a sufficient lead time for competitors to become compliant.

2. Sanctioning Body

The National Auto Sport Association (NASA) sanctions Spec E9X competitions. All events are governed by these Regulations, applicable addendums, as well as those found in the latest version of the *NASA Club Codes and Regulations* (CCR). All decisions made by the series administration are final, except under certain conditions, as specified by the CCR.

3. Definitions and Application of the Regulations

1. "Shall" is mandatory, "may not" is prohibitive, and "may" is permissive. If there is a conflict between the Regulations and the CCR, the Regulations supersede the CCR. If an item is not addressed in the Regulations then the item is controlled by the CCR.

2. If the Regulations do not specifically permit a modification, it may not be made.

3. "Original" and "stock" means "as originally fitted for the chassis, model, and year of the car."

4. "Substituted" means that original OEM equivalent items may be used. Except as noted, variations in color and surface finishes are permitted. Commercially available items marketed as E9x OEM replacement are permitted, except as noted.

5. "Modified" means that the item may be replaced, machined, welded, or removed.

6 "Commercially available" means an item that is readily available for purchase by the public in largely unlimited quantities. This is as opposed to a prototype, unique, or low-volume item that is not in general circulation.

7. The interpretation and application of the Spec E9X Series Regulations by Spec E9X or NASA officials is final and binding. In order to promote the sport of automobile competition, to achieve prompt finality in competition results, and in consideration of the numerous benefits to them, all members, including competitors and officials, expressly agree that:

A. All drivers agree to abide by all applicable rules.

B. All drivers agree that their likeness may be used by Spec E9X or NASA in any manner for promotional benefit. Furthermore, all drivers agree that no residuals or payments of any type will become due to them for use of their likenesses.

4. Classification

1. The Spec E9X Series has one preparation level and class.

5. Series Championship

1. The provisions of the NASA CCR Section 22.0 shall apply.

6. Rules Compliance

1. Each competition vehicle shall conform to these published rules.
2. Any competition vehicle found to have illegal modifications, either by NASA or Spec E9X Officials at any time during a race event, is subject to penalties per CCR Rule 17.7.

7. General Rules

1. Competitive Format

1. The Spec E9X Competitive Format regarding body contact conforms to CCR Section 25.0 "On Course Conduct." & 26.0 "Appendix A."

2. Driver Eligibility

1. A driver shall possess a valid NASA Provisional or Competition License.

3. Vehicle Eligibility

1. The series is open to BMW E90 & E92-chassis 325, 328 & 330 US domestic market (USDM) models. This includes 2006-11 sedans and 2007-12 coupes. Wagon and convertible models are not permitted. Vehicles with automatic transmissions or four-wheel drive are not eligible. "On a case-by-case basis, automatic transmission cars would be considered for competitors with a disability or in-progress builds."
2. Eligible vehicles must comply with the components outlined in these rules.
3. All references to "OEM" refer to 7.3.

4. Vehicle Numbers, Class Identification, Decals

1. Each car shall display easily readable numbers on each side and the front (hood) and rear of the vehicle, of significant size and color differentiation from the body color to be seen by timing and scoring officials. Side numbers shall be a minimum of 12 inches high with a 1-1/2 to 3-inch stroke. The hood and rear numbers shall be a minimum of 5 inches tall.
2. Each car shall have **SE9x** or **Spec E9X** on both sides of the car, in a color contrasting to the mounting/painted surface. Each letter and number must be at least 3" tall and must have a stroke of at least ½". Also required is the same **SE9x or Spec E9X** in white, on the rear window and at the base of the front windshield.
3. The driver or drivers' last names shall be placed in block print letters in white approximately three inches tall on each rear quarter panel window or rear door window and the lower passenger side front windshield.
4. Series or NASA officials may require series and/or sponsor identification (decals) in a specific size and/or location on each car. Decals must be displayed on cars before being allowed to race. Contingency decals must be those supplied by NASA. (NASA, TOYO, HAWK, etc.)
5. NASA decals as specified in the CCR are required.

5. Appearance

1. Cars shall be neat and clean, and shall not be dirty externally or in the engine or passenger compartments.
2. Cars shall not show major bodywork damage, and shall not be presented for competition totally or partially in primer. The vehicle must meet the "50/50" rule, which means it must look undamaged and straight at fifty (50) mph from fifty (50) feet.

6. Repairs

1. All chassis/structural repairs, if performed, shall be in concurrence with factory procedures, specifications, and dimensions. Unless specifically authorized by the manufacturer for repair or allowed by these regulations, no reinforcement, e.g. seam welding, material addition, etc. is permitted.
2. Body repair shall be performed using every reasonable effort to maintain stock body contours, lips, etc.

7. Fuel

1. Permitted fuel is unleaded pump gasoline, with a maximum octane of 93. Fuel must be from a mass-marketed supplier, e.g. BP, Sunoco, Exxon, or other independent mass marketers, e.g. track supplier or local independent gas station.
2. Fuel additives, other than those supplied in the fuels listed above, are prohibited.

8. In Car Adjustments

1. No car is permitted any cockpit adjustable system or component, except as specifically allowed in the preparation rules.

9. Data Acquisition

1. Data acquisition devices are permitted but must not perform a secondary function.

8. Safety

1. Roll Cage

1. The roll cage must be of the standard six-point design, or a 6+2 design with an additional two bars and associated chassis attachment points added for foot protection, provided that the foot protection bars do not go through the front firewall**.** The dashboard may be cut solely to allow passage of roll cage front down tubes and/or one lateral tube, and/or additional support tubes.
2. One (1) optional door-bar support tube may be installed from the door bar(s) to a single point on a plate attached to the horizontal surface of the inner door sill. This mounting plate can extend onto the vertical portion of the door sill but must not serve any other purpose than serving as the termination point for the additional support bar, and must not come in contact with the floor or seat cross member. This applies to both sides of the vehicle. The mounting plate shall be no larger than twenty-five (25) square inches and measure no more than eight (8) inches in any direction.
3. Rear down bars must terminate on the frame rails of the trunk floor.

2. Tow Hooks

1. Folding tow hooks or straps, front, and rear, are required. OEM tow eyes are not recommended, to eliminate protrusions that might cause injury in the pits/paddock and to prevent needless on track damage (bump drafting, etc.).

3. Window Tinting

1. Tinted REAR windows are specifically disallowed, and non-OEM tinting is discouraged in all windows. OEM window tinting is allowed.

4. Steering Wheels

1. Steering wheel locks shall be disabled.
2. Aftermarket (except wood rim) steering wheels are allowed. Airbags must be removed. Quick-release mounting hubs are permitted.

5. Oil lines

1. Oil filter housing may be replaced or an adapter plate installed to add an oil cooler and allow the installation of sensors. A remote oil filter housing is not allowed.

6. Fuel Cells

1. Fuel cells are permitted. If a fuel cell is installed, the original fuel tank shall be removed.

7. Driver Cooling

1. Coolshirt ice chests, helmet blowers, and associated equipment are permitted when properly secured.

8. Battery Location

1. The 12-volt battery may be relocated from the OEM location to any other location inside the trunk compartment of the vehicle. A sufficient battery hold-down system shall be installed per CCR 11.4.9.

9. Specifications

1. General

1. All cars in this category shall compete as equipped by the manufacturer, except as allowed by these regulations.

2. Weight

1. The minimum weight, with the driver, is 2975 lbs. The cars may be weighed at any time during the event by Spec E9X or NASA officials.

3. Engine

1. Intake System

1. The 3-stage Intake manifold (11617522927, 11617559523) from a 330i or 530i must be retrofitted to all 325 and 328 models.
2. Air filter elements may be replaced with non-OEM alternatives as long as they are of similar dimensions.
3. The stock unmodified intake airbox assembly shall be retained and in its original mounting. The built-in charcoal filter can be removed. Intake air scoops are not permitted.
4. The flexible plastic intake boot may be replaced with a non-OEM silicone alternative as long as it is of similar dimensions.

2. Component Modification

1. Machining of the cylinder bore up to 85.250 mm is allowed. All pistons shall be factory replacement specs and match the factory dome, dish, valve relief depth, ring groove placement, weight, and wrist pin height; compression shall meet factory replacement specifications. See Appendix A.
2. Crankshaft main and rod journals can be machined within minimum factory spec. Rod and Main Bearings may be replaced with aftermarket products marketed as OEM replacements. Coated bearings are acceptable. Bearings that differ dimensionally from OEM are not acceptable. See Appendix B.
3. Rings may be replaced with aftermarket products as long as they are commonly available and are routinely marketed as OEM replacements. Rings that come with pistons marketed as OEM replacements are acceptable. Rings that otherwise differ from the OEM design are not acceptable. See Appendix C.
4. Valves and Valve guides may be replaced with commercially available parts of the same dimensions and material. See Appendix D.
6. No engine component may be modified in any manner not specifically permitted or authorized by the

Factory Service Manual, the Bentley Service Manual, or Factory Technical Bulletins.
7. Overhaul procedures that in any way may increase performance beyond factory specifications that are not specifically authorized by these regulations are prohibited. (e.g. porting/polishing, etc.)

3. Fuel System

1. Fuel filters may be substituted.
2. Any commercially available fuel pumps, hoses, and fuel tank baffles are allowed. A surge tank to prevent fuel starvation, with no other function, is allowed. All other fuel system components must remain stock.
3. Fuel components, including but not limited to lines, filters, pumps, etc., may not be located in the driver/passenger compartment.
4. The stock fuel pressure regulator must be used in all cars with a factory fuel tank.
5. Fuel lines may be replaced with commercially available alternatives as long as they perform no other function and must be of the same diameter.
6. Any stock OEM E9x fuel tank or equivalent is permitted. The fuel fill neck may be modified to remove restrictions for faster refueling. No other modifications to the tank are allowed unless permitted elsewhere in these rules.

4. Camshaft and Valve Gear

1. All cam dimensions, lift, duration, etc., shall conform to factory specifications and cannot be modified. Cam timing cannot be modified and needs to be set to factory spec. Intake cam part numbers 11317516032 or 11317563663 shall be used. Exhaust cam part numbers 11317563665, 11317550557, or 11317527760 shall be used.
2. Valvetronic eccentric shaft cannot be modified and needs to be set to factory spec. Valvetronic eccentric shaft part number 11377515868 shall be used.
3. Valvetronic supports cannot be modified and need to meet factory specs. Modified Intake Lift Valvetronic Supports(MILVs) are not allowed.

5. Block

1. Compression ratio may be changed only within the tolerances affected by resurfacing for trueness and within factory tolerances or as allowed by these regulations. See Appendix B.

6. Oiling System

1. Engine oil is unrestricted.
2. Engine oil filter is unrestricted.
3. A pressure accumulator/"Accusump" is permitted, and the location of the accumulator within the bodywork is unrestricted, but it shall be securely mounted.
4. Oil lines that pass through the driver/passenger compartment shall be metal or metal braided and securely fastened.
5. Oil pans, pan baffles, scrapers, windage trays, and oil pickups are unrestricted. Oil pressure relief valves may be modified or removed.
6. Dry sump systems are prohibited.
7. Oil filter housings may be substituted.
8. Oil coolers may be added or replaced, and their location within the bodywork is unrestricted so long as they are not mounted within the driver/passenger compartment.
9. Oil lines may be replaced.

7. Engine Management System

1. Engine must be controlled by an MSV80 DME flashed with the Epic Motorsports Spec E9X tune. The tamper-proof seals must be intact. All model year 2006 cars are equipped with MSV70 DME and must convert to MSV80 by replacing the DME, CAS, Key, throttle body, and MAF sensor.

8. Other Engine Related Items

1. Engine mounts of any material, providing the same height as the original, are permitted.
2. Engine belts may be substituted.
3. Hardware items (bolts, nuts, etc.) may be replaced with similar items performing the same fastening function.
4. Head gasket(s) may be replaced with any gasket(s) having the same or greater compression thickness as stock.
5. Other engine gaskets are unrestricted.
6. The application or use of any painting, coating, plating, or impregnating substance (i.e. anti-friction, thermal barrier, oil shedding coatings, chrome, anodizing, etc.) to any internal engine surface, including intake and exhaust manifolds, is prohibited. The exteriors of the engine block, intake manifold, and valve cover may be painted.

4. Ignition/Starter/Electrical Systems

1. Spark plugs and coils may be replaced with commercially available alternatives marketed as OEM replacements.

2. Batteries are unrestricted.

5. Exhaust System

1. The spec exhaust system must be fabricated using the Spec E9X approved parts listed below and may not be modified in any way, except as described below. The following parts must be used and assembled as designed by the manufacturer.

1- **N52HEADER** Condor N52 Headers
2- **Y214300** or **Y214300S** Flowmaster 2.25” to 3” Y Collector
3- **FLO71229** Flowmaster FlowFX 3" Inlet/Outlet Oval Muffler (**HOK-21630HKR** HOOKER MFSC MUFFLER is being phased out due to quality issues)

2. The Flowmaster 2.25” to 3” Y collector must be welded approximately 16”- 17” from the flange of the Condor N52 headers.
3. The spec exhaust system components must be welded together. Any commercially available clamp or flange may be used to connect two sections, so long as it serves no other function.
4. Original factory-installed exhaust heat shields may be removed or replaced with material that only insulates the driver compartment from exhaust system heat. Materials used may attach to the exhaust components and/or the car body.
5. The original OEM exhaust in unmodified form may be used.

6. Cooling Systems

1. Radiators

1. Any radiator may be used, provided it is mounted in the original location, maintains the same plane as the original core, and requires no body or structure modification to install.
2. Electric cooling fan and associated assembly (fan, fan motor, and fan shroud) may be removed or

replaced with commercially available alternatives that perform no additional function.
3. Electrically operated fans with manual or automatic actuation may be added.
4. Thermostats may not be modified.
5. Water hoses may be replaced with commercially available alternatives that perform no additional function. In-line coolant sensors may be added.

2. Air Conditioners

1. Air conditioning belts and pulleys may be removed.
2. Air conditioning system may be removed in whole or in part.

3. Heaters

1. Heater hoses may be modified.
2. Heater water control valve(s) may be added or modified.
3. Heater core and heater core box, and the related hoses, may be removed. An electric windshield defogging system may be added.

7. Drive Line/Driveshaft

1. Driveshaft may be substituted with an OEM equivalent.

8. Steering

1. Steering racks may be substituted within the 325, 328, and 330 models. Active steering, 335, and M3 racks are not permitted. The interior steering shaft angle may be altered to reposition the steering wheel, but it must be secure.
2. The steering column, shaft, and coupler may be modified and/or replaced with commercially available alternatives. The steering rack must remain stock.
3. Power steering pump and associated plumbing may be removed, provided the steering rack is looped to prevent fluid leakage.
4. Power steering hoses may be modified.

9. Suspension

1. Ohlins suspension - part number BMU MW00S1 shall be used. No modifications of any kind are permitted. The suspension may be rebuilt only by the manufacturer or approved rebuild facilities.
2. Springs provided with BMU MW00S1 suspension kit must be used. Swift Front: Z65-152-120, Swift Rear: Z65-203-160, Swift Front Helper: H65-060-015. Helper springs may be used on the front or the rear.
3. Front camber and caster are unrestricted within the limitation and adjustability of any mass-produced aftermarket camber/caster plates. The manufacturer is free unless specified in these regulations. A "Manufacturer" is defined as a company conducting commercial business in a specific location and which produces/builds a minimum of 15 camber plates of the same design, per year. No modifications to the body and/or interior tub panels are allowed.

1. Camber plates must be installed per the manufacturer's instructions.
2. The top three front strut mounting holes may be slotted laterally, only to enable more range of camber adjustment.
3. The strut tower center hole may not be notched/trimmed.

4. The use of the E9x M3 front left and front right tension strut and control arms are permitted. All other arms must remain stock. The following parts must be used and assembled as designed by the manufacturer. 31102283575, 31102283576, 31102283577, 31102283578. OE rubber front suspension arm bushings may be upgraded to commercially available non-metal and non-spherical alternatives.

5. Rear camber is unrestricted within the limitation and adjustability of the stock rear suspension arm eccentrics. No modifications to the body, subframe, and/or interior tub panels are allowed. The rear suspension arms must remain stock. OE rubber rear suspension arm bushings may be upgraded to commercially available non-metal and non spherical alternatives.
6. Unless otherwise restricted in these regulations, any front or rear suspension toe setting not requiring machining or modification to factory parts is allowed.
7. Any bolt-in strut or shock tower brace is permitted. Attachment points are limited to the shock towers and the original firewall mounting point. This bar can not be a part of the car's roll cage structure and is not bound by CCR section 15.6.
8. OE rubber subframe bushings may be upgraded to commercially available non-metal alternatives. They must be the same height as the original. Chassis reinforcements for the rear subframe, front subframe, and swaybar mounts may be added.
9. Solid and spherical rear upper and lower shock mounts are permitted.
10. The maximum allowed front and rear track width is 71 5/16". The suspension width will be periodically measured by using a set of Longacre Toe Plates (part #LAR-79501) or toe plates of a similar design and the included tape measures, or equivalent. The measurement will be taken from the outside edge of each plate on the lowest slot which is 3/16 from the bottom of the plate and will be averaged between the front and rear toe measurements on each axle.

10. Swaybars

1. An unmodified non-adjustable OEM or aftermarket steel front swaybar measuring no more than 32mm, and an unmodified non-adjustable OEM or aftermarket steel rear swaybar measuring no more than 20mm is permitted. Swaybars may be interchanged between all E9X models. Swaybars may not be adjustable from the inside cabin.
2. Swaybar bushings may be replaced with commercially available alternatives if they are 1) marketed as OEM replacement, and 2) designed to be installed w/o modification of OEM chassis or suspension members. Designs that require modification of OEM suspension parts, as can be the case with spherical bearings, are not permitted. Roller bearings are not permitted.
3. Adjustable Swaybar bar end-links and aftermarket spherical end-links are permitted.
4. Disconnecting and or removing the front and/or rear swaybar bar is permitted.
5. Swaybars may not be adjustable via bolt holes or sliding links.

11. Tires and Wheels

1. Toyo RR or Maxxis Victra RC-1 255/40-17 is the required tire and must be used in qualifying and competition. Toyo RA1 235/40-17 & or Maxxis Victra VR-1 255/40-17 may be used instead of the RR.
2. Commercial tire shaving, evenly across the entire width of the tread, to any depth is allowed. Tires may be "branded" to qualify for contingencies. Tires shall not be modified in any other way.
4. Wheels may be replaced with alternatives that are 17" in diameter and 9" in width and shall weigh a minimum of 16.2 pounds.
5. Wheel bearings may be substituted.
6. Wheel-bearing lubricant may be substituted.
7. Wheel spacers are permitted.

12. Brakes

1. The make and material of brake pads is unrestricted.
2. Brake calipers and rotors must match OEM dimensions. Calipers and rotors may be substituted within the 325, 328, and 330 models. For example, an e90 325 can run e90 330 brakes and an e90 330 can run e92 328

brakes, or any combination thereof. 335, MSport, and M3 calipers and rotors are not permitted.
3. Cross-drilling, grooving, and slotting of rotors is permitted.
4. Rotors may be cryogenically treated.
5. Removal of dust shields (backing plates) is permitted. Installation of aftermarket backing plates to allow the installation of brake cooling and/or ducts is permitted.
6. Brake fluid is unrestricted.
7. Flexible rubber brake lines may be substituted.
8. Metal brake lines may be substituted.
9. Parking brake and associated mechanisms, including the parking brake console, may be removed.
10. Brake caliper guide bushings may be substituted.
11. The ABS components shall be OEM E9X 325, 328, or 330 parts displaying the appropriate OEM part numbers, and the units cannot be flashed or modified in any way. Wheel speed sensors must be OEM or OEM equivalent.
12 Brake Master Cylinders must be unmodified and match OEM specs.

13. Differential

1. The required final drive ratio is 3.73 (commonly found in automatic cars). The original differential housing, flanges, and mounting points are required.
2. Limited-slip differentials are permitted.
3. Finned, larger capacity differential covers may be used, OEM part number 33117516280.
4. Differential lubricants and additives are unrestricted.
5. One hose may be attached to the factory differential vent pipe/fitting and must be connected to a catch tank.
6. OE rubber differential mounts may be upgraded to commercially available non-metal alternatives. They must be the same dimensions as the original.

14. Transmission/Flywheel Assembly

1. Transmission shall be an unmodified factory standard 6-speed designated for the US E9x 325 328 & 330 models only.
2. Transmission lubricant is unrestricted.
3. Modification to the shifter mechanism and knob is permitted.
4. Transmission mounts of any material, providing the same height as the original, are permitted. The vibration damper may be removed.
5. The stock dual mass flywheel can be replaced with Valeo 835115 single mass flywheel conversion. Any single clutch disc and pressure plate of original diameter (228mm or 240mm) may be used provided that they bolt directly to an unmodified stock flywheel or the Valeo single mass flywheel.
6. Balancing of the flywheel/clutch/pressure plate assembly is permitted. After balancing, the flywheel must be within factory dimensions for diameter and weigh at least 22.5 lbs.
7. One hose may be attached to the factory transmission vent pipe/fitting and if fitted, must be connected to a catch tank.

15. Body/Chassis/Interior

1. Driver and passenger seats must be replaced with any FIA Approved racing seat or compliant with NASA CCR 15.6.21 and 15.16. The passenger seat may be removed.
2. Ballast is permitted and shall be securely mounted within the passenger compartment, or the trunk.

1. Ballast shall be in segments no heavier than fifty (50) pounds.
2. Ballast may not exceed one hundred twenty-five (125) pounds maximum.
3. Each weight segment, or stack of segments, shall be fastened with a minimum of two (2) one-half

(1/2) inch diameter bolts and locknuts of SAE grade 5 or better unless the ballast is mounted using the four (4) passenger seat mounting points and replacement bolts, and shall utilize large diameter, load-distributing washers.

4. Holes may be drilled in the passenger compartment for purposes of securely mounting the ballast and the mounting point may be reinforced for the same purpose. Ballast that is secured to sheet metal will use a washer larger than 1” in diameter for 50lbs, larger than 1.5” dia for 75lbs, etc.

3. Front spoilers/air dams are not permitted except for OEM part numbers 51192159147 or 51192159148 for e90 & 51110414371 or TMS2250 or 51192159147kt for e92 (or reproductions similar in size and shape.)
4. Splitters are prohibited. Splitters are defined as a flat extension mounted to the very bottom of the front bumper and extending forward. The stock undertray may remain.
5. Headlight assemblies may not be removed. Bulb assemblies may be replaced by additional light sources within the stock housings. Headlights can be gutted and are not required to be functional as long as the clear headlight housing lens is not modified in any way. Headlight assemblies can be painted or wrapped.
5. Taillight lenses must be unmodified and 2 of the 3 brake lights must function. A modification for additional unused tail light bulbs wired up to the brake light circuit is allowed.
6. Windshield wiper arms may be removed.
7. Rear spoilers/wings are not permitted except for OEM part numbers 51710396344 for e90 & 51628044188 or 51622159805 or 51710443130 for e92 (or reproductions similar in size and shape. Spoilers shall attach with double-sided tape and shall not protrude past the vertical trunk lid surface more than 1.75” & shall not rise over the horizontal trunk surface more than 1.75” when measured at any point along the edge of the trunk lid).
8. Modifications to the underside of the vehicle for the purpose of improving aerodynamics are not allowed.
9. Engine and chassis under-tray panels may be removed.
10. Ducting air to the brakes is permitted, and two openings in the front valance to allow the passage of up to a three (3) inch diameter duct hose leading to each front brake are permitted for this purpose. Installation of ducts in the front air dam or valance for the brake cooling hoses is permitted.
11. Fender and wheel openings shall remain unmodified.
12. It is permitted to roll under or flatten any interior lip on a wheel opening for tire clearance.
13. Non-metallic inner fender liners may be removed.
14. The following interior components may be removed: carpeting, seats, headliner, console, radio/navigation/trip computer systems, OEM seat belts, speakers, glove box door, panels under the dash, grab handles, driver and passenger door (front and rear) window glass and mechanisms, heating and cooling system interior ducts, rear passenger compartment trim panels (side panels and fabric package shelf), Trunk compartment trim panels, rear bolt in storage tray, and sun visors. The third brake light shall remain in place. Tools and other 'loose' items must be removed.
15. A driver's side dead pedal/footrest may be added & pedal covers may be replaced.
16. Screen mesh may be added over all openings in the front of the vehicle, contained entirely within the bodywork of the vehicle.
17. Aftermarket gauges, warning lights, and switches are permitted, shall be securely mounted, and must function as intended by the manufacturer. They may perform no secondary function.
18. Dashboard shall be retained. Modification to the dashboard/dash panel is permitted, but only for roll cage installation or to allow for the installation of gauges and switches.
19. Interior mirror(s) may be added and/or replaced.
20. Driver’s and passenger side outside mirror glass may be modified. Mirror housings shall remain stock and in the stock location.
21. Two-way radios may be used. An antenna for the two-way radio may be added.
22. On-board timing receivers are permitted.

23. Windshield washer fluid reservoirs, pumps, and lines may be modified or removed.
24. Inner door panels may be removed or replaced with shatterproof material, securely attached to the door.
25. Interior trunk, front and rear door steel panels may be cut out. Doors must retain window frames and outer window trim.
26. Doors adjacent to a seat equipped with seat belts or harnesses shall be capable of being opened from both inside and outside the car.
27. The sunroof cassette mechanism may be removed so long as a replacement panel is either securely sealed (welded/bonded) or secured in place with retaining clips as specified in the CCR. The replacement sunroof panel shall be flush with the roofline and of metal or composite. A thin sheet that follows the contour of the stock roof and is secured to the stock roof is acceptable.
28. Any sound-deadening/insulation and protective materials may be removed from the interior of the passenger, engine, and trunk compartments.
29. Any undercoating or other protective materials may be removed from the underbody.
30. Hood and trunk pins, clips, or positive action external latches are permitted. If hood pins, clips, or latches are used, the stock releases and components may be removed. Stock releases and components may be relocated or modified, provided they perform no additional function.
31. All unused wiring and wiring harnesses may be removed. All unused relays and fuses may be removed.
32. The stock horn and its components may be removed.
33. Headlight, turn signal, and windshield wiper stalks may be modified. Installing alternate switches located elsewhere in the driver compartment is acceptable.
34. NASA CCR 18.5 requires that the battery be “fully covered” in a “marine type battery case” if it is in the “driver’s compartment.” E9x’s have their batteries in the trunk and they are generally not “fully covered”. The trunk is separate from the “driver’s compartment” so the battery does not need to be in a marine-type battery case and a firewall does not need to be added.

16. Windows.

1. Windshield Protection Film may be used.
2. Front door glass may remain in place, it is recommended that a shatterproof panel be installed to contain broken glass.
3. Coupes: Rear passenger windows may be replaced with a clear polycarbonate material no less than 1/8” thick approximating the size and shape of the original. A NACA duct may be mounted on the window. Fasteners that allow for easy removal may be used.
4. Sedans: Rear door windows may be replaced with polycarbonate windows but must remain fixed. The OEM weatherstripping, door frame, and trim pieces must remain.
5. The rear windshield must remain glass.

10. Engine Dynamometer Testing Procedure

1. To ensure objectivity, a Spec E9X Series official, an appointed official, or an approved technician will operate any cars being inspected on the chassis dynamometer. Three consecutive "official" dyno pulls must be performed and the average result of the three pulls in each category or HP and Torque (rounded to the nearest tenth) will be used for compliance. NASA, its officers, officials, and assigns are not responsible for any mechanical failures or damage otherwise while the dyno runs are being performed.

1. The DynoJet brand is the required type of dyno for testing and inspection. All dyno readings must be corrected to SAE J1349 Rev JUN901 and the dyno’s smoothing function set to **5**. The location of the dyno shop should be recorded.

2. Before the chassis dynamometer inspection the competitor may top off any fluids needed to ensure the engine and drivetrain are not damaged during testing. The fluids must be added with a NASA Technical Inspector present and no other modifications or adjustments may be made to the car.
3. All dyno pulls will be made with the hood opened.
4. Dyno pulls will be made in 5th gear, a 1:1 ratio.
6. During an official dyno test, the car must be fitted with the tires used on the car in the previous session with the rear tire pressures set at 38 psi minimum.
7. Electric engine fans and or external cooling fans and externally operated water misters may be used while the car is on the dyno.
8. Dyno runs shall be made with water temperature in the normal operating range of 180F-220F (TBD) and drivetrain fluids up to a normal running temperature. Should the water temperature exceed 225F during any pull, that dyno pull is void and shall be repeated once the engine has cooled enough to operate within the specified range. Water temperature may be verified using external temperature measurements such as an infrared temp gun at the upper radiator hose connection.
9. Three consecutive runs shall be made under full power. The RPM range shall be consistent for all three runs. Ending RPM shall be when the rev limiter engages at approximately 7,000 RPM.
10. Should any run result in an erratic or non-repetitive result, series officials may dismiss the result or request another dyno pull.
11. The NASA Compliance Director may also make adjustments to the official maximum horsepower and torque numbers if he/she feels that the dyno is reading unusually high or low.
12. Additional runs may be performed using NASA compliance parts such as DME.
13. Multiple dynos may be in use at any given time. If so, using a reference car, the % difference between the facilities' highest and lowest readings will be used to satisfy CCR 28.1.11. (1/2 of a tool's measurement). The competitor has no choice of dyno to be measured on, and will not be re-measured on another dyno without a completed appeal satisfying CCR 17.5.3.

Multi-Dyno Testing Procedure

If the observed difference in average HP for the test car between multiple official dynos in use is 1.6 HP, then 0.8 HP will be considered the error. This 0.8 HP will be subtracted from the competitor measured average before rounding to the official test result.
14. The multiple dyno averaging procedure is only good for one competition day during a multiple-day event, and must be rerun using a reference vehicle to continue to satisfy CCR 28.1.11. CCR 28.1.11 will not apply when only one dyno is in use on any event day.
15. Reference cars may be employed during an event to account for possible internal (instrument) or external (changing weather conditions) drift. Where practical, it is recommended that the selected reference car's engine be sealed (or critical components such as the MAF and ECU, etc. be marked) by a NASA official at the start of the event and dyno-tested (at a minimum) at the beginning and end of the event.
16. Post-race compliance: If a car is selected for any post-race dyno compliance test, the vehicle must be dynoed per these rules. Should for any reason the competitor's vehicle fail to meet this post-race dyno compliance requirement, the competitor will be disqualified (DQ) from that race or qualifying session. The NASA Compliance Director will report the failure of rules compliance to the race director.
Notes: *The Society of Automotive Engineers (SAE) created the SAE J1349 JUN90 standard method for correcting horsepower and torque readings so that they will seem as if the readings had all been taken at the same "standard" test cell where the air pressure, humidity, and air temperature are held constant. Furthermore, the SAE J1349 JUN90 standard includes an assumed mechanical efficiency of 85% in order to provide an estimate of the true engine horsepower (without accessories). http://wahiduddin.net/calc/cf.htm*

Engine Inspection The NASA Compliance Director may elect to inspect any component of a suspect engine and associated parts for non-compliance. Inspection of engines and components follows NASA CCR rules 17.1

through 17.4. If noncompliance is determined, then penalties will be assessed per NASA CCR Rule 17.7 and any local Regional supplemental rules.

11. Appendix

A.

11 25 Pistons with Rings and Pins N52 B30

Piston and pin are paired to each other - replace together only.		
Measuring point "A" (position)	mm	14
Piston diameter at measuring point "A"		
Original (new dimension)	mm	84,98 ... 85,00
Repair stage (new dimension)	mm	%
Oversize (new dimension)	mm	85,23 ... 85,25
Piston installation clearance (piston new)	mm	0,00...0,03
Piston installation clearance (piston worn)	mm	0,02 ...0,08
Permissible total wear tolerance between piston and cylinder (engine operated)	mm	0,15

B.

11 21 Crankshaft and Bearings N52 B30

Ground sizes of main bearing journals		main bearing journal
Original (designation S1)	mm	55.998...55.992
Original (designation S2)	mm	55.992...55.987
Original (designation S3)	mm	55.987...55.981
Grinding stage 1 (designation B1)	mm	55.748...55.742
Grinding stage 1 (designation B2)	mm	55.742...55.737
Grinding stage 1 (designation B3)	mm	55.737...55.731
Grinding stage 2 (designation C1)	mm	55.498...55.492
Grinding stage 2 (designation C2)	mm	55.492...55.487
Grinding stage 2 (designation C3)	mm	55.487...55.481
Crankshaft bearing clearance, radial	mm	0.020...0.046
Max. permitted runout at centre crankshaft journal	mm	0.15

11 00 Engine in general N52 B30

Cylinder		6
Bore	mm	85
Stroke	mm	88
Effective displacement	cm^3	2996
Compression ratio	:1	10.70
Max. permissible engine speed	rpm	6550 ± 50
Permissible constant speed	rpm	6300
Compression pressure: Minimum and maximum values depending on position of Valvetronic.		9 ... 18
Compression pressure: Maximum deviation of all cylinders to each other.	bar	2

C.

11 25 Pistons with Rings and Pins N52 B30

1st groove		
End clearance	mm	0.15 ... 0.30
Axial play	mm	0.020 ... 0.070
2nd groove		
End clearance	mm	0.30 ... 0.50
Axial play	mm	0.040 ... 0.080
3rd groove		
End clearance	mm	cannot be measured
Axial play	mm	cannot be measured

D.

11 34 Valves with Springs N52 B30

Plate dia.		
Inlet	mm	$34.2^{\pm 0.05}$
Exhaust		$29.0^{\pm 0.1}$
Stem Ø		
Inlet	mm	$5.0^{-0.1}_{-0.06}$
Exhaust	mm	$5.0^{-0.1}_{-0.06}$