

Spec E46 Rules and Regulations  
Version 1.2  
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## 1. Introduction

Spec E46 is a road racing class based on BMW's E46 chassis that emphasizes high performance, vehicle consistency, reasonable cost, and ease of entry in order to provide a highly competitive, driver-focused racing experience.

## 2. Intent

Spec E46 is a spec racing series combining vehicle equality with a high level of chassis performance and adjustability to maximize driver involvement. Engine development above a stock power level is not included in the intent of Spec E46. Future additions to this rulebook, potentially including but not limited to maximum power definitions, mandatory teardowns, and engine claim rules, can and will be made to eliminate engine development if needed to maintain car parity within the originally intended budget.

## 3. Sanctioning Body

We are in the process of finalizing the rules for submission to NASA for approval in 2014.

## 4. Vehicle Eligibility

The series is open to BMW E46-chassis 330 USDM models. This includes 2001-05 sedans and 2001-06 coupes. ZHP variants, 330xi, and convertibles are not permitted.

## 5. Safety

1. All safety requirements will follow NASA standards as detailed in the NASA CCR. If the Spec E46 rules and CCR differ the Spec E46 rules shall supersede the CCR.
2. A stationary fixed nozzle fire system must be installed.
3. A master electrical kill switch must be installed.
4. Steering wheel lock must be disabled.
5. Airbags must be removed.
6. Glass sunroof must be removed and replaced with a metal or composite panel securely attached to the roof.
7. 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. No additional tabs or attachment points are permitted.

## 6. Definitions and Defaults

1. Cars must compete as equipped by the manufacturer, except as permitted by these regulations.
2. Addition, removal, modification, or disabling of parts is not permitted unless specified.

3. OEM equivalent parts may be used provided they do not provide a performance advantage over stock.
4. 'Replaced' means that parts may exceed OE specifications, provided they are mounted in the stock location and perform the same function.
5. If a part may be removed any related brackets, fasteners, electrical components, etc may also be removed.

## 7. General Specifications

1. Fuel must be pump gas rated 93 octane or lower.
2. All lubricating and hydraulic fluids may be replaced.
3. All filters may be replaced.
4. Minimum vehicle weight is 2900# with driver. [Note that this may change following a reasonable build on coupe and sedan cars.]

## 8. Engine

1. Regardless of factory specification or procedure, no oversize pistons are permitted.
2. Compression ratio may be changed only within the tolerances affected by resurfacing for trueness and within factory tolerances, and shall not exceed 10.5:1 [exact value TBD] as measured by a whistler device.
3. Oil pan baffle may be added.
4. Spark plugs may be replaced.
5. Head gasket may be replaced with any gasket having the same or greater compression thickness as stock. Other engine gaskets and seals may be replaced.
6. The stock oil pump assembly may be modified.
7. The oil filter housing may be replaced with the E46 M3 part (BMW part number 11 42 7 839 858).
8. A custom ECU tune will likely be specified in order to ensure compliance and maximize power/reliability. [This will be evaluated further once prototype cars are built.]
9. Horsepower or other engine checks may be performed to ensure compliance.

## 9. Engine Bay

1. Engine accessory belts may be replaced.
2. Pulleys may be replaced with metal versions of the same diameter.
3. The fuel system vapor recovery canister and its associated hoses and brackets may be removed or plugged.
4. Windshield washer system may be removed.
5. Power steering hoses and reservoir may be replaced.
6. The horn may be removed.
7. All HVAC components may be removed.
8. Fittings, adapters, senders, and sensors for monitoring or data acquisition systems may be added.
9. Xenon headlights may be replaced by standard lights.

## 10. Cooling System

1. The radiator may be replaced provided it maintains the factory single pass design, closely matches the original size, and requires no body or structure modification to install.

2. Mechanical cooling fan may be removed or replaced. Electric cooling fans are permitted.
3. All extraneous coolant hoses may be removed or plugged.
4. Coolant hoses may be replaced.
5. Thermostat may be replaced or an alternate configuration used.
6. Water pump may be replaced, provided it remains mechanically driven.
7. An alternate coolant expansion tank may be installed.
8. Oil coolers for engine, transmission, and differential are allowed.

## 11. Exhaust System

1. All SpecE46 cars must use the specified exhaust. [Cars will likely use factory E36 exhaust manifolds. The rest of the exhaust system will likely be a custom-designed piece available through BimmerWorld. Please do not assume that any other exhaust configuration will be permitted.]
2. The unmodified stock exhaust may be retained if the spec exhaust is not installed.

## 12. Drivetrain

1. Either the 5 or 6-speed E46 330 manual transmission may be used.
2. Flywheel and clutch assembly may be replaced provided they use the stock hydraulic actuating mechanism. Clutch must be a single disc type. [We are working on sourcing an optional flywheel/clutch kit for this powertrain so check with us before buying anything].
3. The shifter mechanism may be replaced or modified.
4. Motor and transmission mounts may be replaced.
5. An upgraded differential is permitted using a 3.46 gear ratio, factory housing, flanges, and mounting points. The internal parts of the differential are otherwise unrestricted, including the use of limited slip units.
6. A finned and/or larger capacity differential cover may be used.
7. Differential bushings may be replaced.

## 13. Suspension

1. Shocks must be MCS non-remote reservoir single-adjustable (1WNR).
2. Front springs must be Hyperco 6" 2.25" ID 750# part number 186A0750.
3. Rear springs must be Hyperco 5" 2.25" ID 850# part number 185A0850.
4. Swaybars may be replaced provided they use stock mounting locations and either individual hole or sliding collar adjustment. Remote-adjustable or blade-type bars are not permitted.
5. Swaybar links may be replaced.
6. Adjustable camber/caster plates are permitted. The three front strut mounting holes and center hole may be notched/trimmed to provide clearance for fitment or achieving full range of adjustment.
7. Any OE-spec E46 non-M3 front control arm may be used.
8. Front control arm bushings and housings may be replaced.
9. Rear upper shock mounts may be replaced.
10. Rear trailing arm bushings may be replaced with a non-spherical bearing part.
11. Height adjustable rear spring adjusters may be added.
12. Rear lower control arms may be replaced.

## 14. Tires and Wheels

1. Wheels may be replaced, 17" diameter and maximum width 9".
2. Wheels and tires must fit within the bodywork and fenders.
3. Minimum wheel weight is 16.5#.
4. Wheel studs and lug nuts may be added.
5. Wheel spacers may be used.
6. Tires TBD but will be spec, most likely 235 to 255/40-17.

## 15. Brakes

1. Brake pads may be replaced.
2. Brake rotors may be replaced provided they are one piece steel. Rotors may be cross-drilled, grooved, slotted and/or cryogenically treated.
3. Dust shields may be removed or replaced for cooling.
4. Flex lines may be replaced.
5. Brake caliper guide bushings may be replaced.
6. Parking brake may be removed.
7. Ducting to the brakes is permitted. Two openings in the front valance to allow the passage of up to a three (3) inch diameter duct leading to each front brake are permitted for this purpose.

## 16. Body and Chassis

1. Any non-M E46 bumper covers of factory design and materials may be used.
2. Factory rear trunk lid spoiler must be removed if installed.
3. Engine under-tray panels may be removed.
4. Fenders may be rolled inside for clearance but can not be visibly or measurably altered on the outside profile or width.
5. Non-metallic inner fender liners may be removed.
6. Screening of 1/4" minimum mesh may be added over all openings in the front of the vehicle, contained entirely with the bodywork of the vehicle.
7. Side moldings, side reflectors, etc may be removed and attachment holes may be filled.
8. Hood and trunk pins, clips, or positive action external latches may be added. If alternate parts are used the stock releases and components may be removed.
9. Chassis reinforcements for the rear subframe, rear trailing arm pocket, front subframe, front strut towers, and swaybar mounts may be added.
10. Rear subframe bushings may be replaced.
11. Tear-off protection film may be added to the windshield.
12. Both driver and passenger front side windows may be removed. Side windows to the rear of the B-pillar may be permanently fixed in position.
13. A secondary fuel pump to minimize fuel starvation may be installed. The secondary fuel pump must be located in the fuel tank and have no other function.
14. The fuel filler neck may be modified to allow easier/faster fueling with jugs or other non-street-pump fueling systems.
15. The battery may be replaced provided the positive terminal is properly insulated.
16. Ballast is permitted and must be securely mounted within the passenger compartment or trunk. Ballast segments must not exceed 50#.

## 17. Interior

1. All non-essential hardware and material in the interior and trunk may be removed. This includes carpeting, headliner, sound and thermal insulation, lighting, HVAC components, audio systems, passenger and rear seats, seatbelts, trim pieces, tools, spare wheel/tire, storage compartments, rearview mirror.
2. The stock dash must be retained. The portion of the dash extending below the middle trim strip may be modified or removed.
3. The steering wheel may be replaced and a quick release added.
4. The steering column may be mounted to the roll cage front cross bar if equipped.
5. A driver's side dead pedal/foot rest may be added.
6. Pedal covers may be added or replaced.
7. Shift knob may be replaced.
8. Aftermarket gauges are permitted, provided that they serve no other function and are securely mounted.
9. The stock instrument cluster may be removed and replaced with a panel suitable for mounting gauges. Areas directly behind the gauge panel may be modified/trimmed to accommodate gauge mounting.
10. Interior mirror(s) may be added and/or replaced provided the replacement mirror(s) does not extend beyond the confines of the interior of the vehicle.
11. Driver and passenger side outside mirrors may be replaced provided they do not protrude farther than the stock mirrors.
12. Inner door panels may be removed. If front door retains door glass and window regulators, interior door panels must be replaced with aluminum sheeting of 0.060-inch or thicker or comparable shatter-proof material, securely attached to the door.
13. Interior door steel panels may be removed along with window regulators and lock mechanisms.
14. Any door adjacent to a seat equipped with seat belts or harness must be capable of being opened from both inside and outside the car.
15. Turn signal, headlight, and windshield wiper stalks may be modified, removed, or replaced with alternate switches located elsewhere in the driver compartment.
16. Driver accessories including but not limited to cool suits, helmet blowers, data acquisitions systems, video capture systems, two-way radios, and associated equipment are permitted, provided that such accessories are properly secured.