



## SPEC E36™ Class



The Spec E36™ class is designed to specify a set of E36 chassis, six-cylinder race cars that are prepared to a uniform level. The modifications required or allowed are intended to produce a fun, fast race car that feels like a race car, yet remains relatively inexpensive to prepare, maintain and campaign.

BMW CCA Club Racing may, from time to time, make adjustments to these specifications in order to balance competition.

**WARNING:** Spec E36 is a class dedicated to competition between drivers, not their ability to prepare a car. Any modifications not specifically listed within the class rules are not allowed. Any variances found at the track will result in severe penalties as allowed. Any rules loopholes will be closed quickly. This is not a class in which to exploit the rules; strict adherence to the rules is expected without exception.

### **RULES:** 2023 Changes highlighted in yellow

- A. Spec E36 class race cars are measured with the driver and all personal safety gear in the vehicle and total weight must meet or exceed the allowed Spec E36™ weight published herein.
- B. All requirements from the General and Safety sections of the current BMW CCA Club Racing Rule book must be followed. Spec E36 rules stand alone and do not use allowances from the Stock or Prepared classes unless specifically noted herein.
  - 1. **Roll Cage:** 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. No additional tabs or attachment points are permitted.
- C. Consumable items normally subject to wear and tear under street driving conditions such as belts, wiper blades, and filters may be replaced with OE equivalent replacement parts (that do not offer any performance advantage) available from commercial retail sources.
- D. **For factory original E36 parts (not including internal engine parts), aftermarket replacement parts may be utilized as long as the part is equivalent to the OE part.**
- E. The required or recommended components for a Spec E36 car are specified on the “Spec E36 Components List” in the appendix.
- F. Spec E36 is a trademark of the BMW Car Club of America.
- G. **Engine**
  - 1. All component part numbers must be identical to those contained in the engine as delivered from the factory, except as noted in the rules below.
  - 2. The engine must be as delivered from the factory. Internal and external hardware (nuts, bolts, etc.) may be replaced with OE equivalent or better items performing the same fastening function(s) (for example, studs/nuts/washers replacing bolts). All hardware must be the same size/diameter as OE. No other modifications of any type are permitted after the air intake/air filter assembly or before the exhaust port.
  - 3. The stock air box and intake must be retained. The air filter panel is free. The ducting before the air box (the “snorkel”) is free.
  - 4. Stock fuel injection for the chassis, model, and engine must be retained.
  - 5. Engine management systems other than the stock ECU are not allowed.
  - 6. Unless explicitly permitted in these rules, devices that alter, condition, or otherwise modify the inputs to the ECU or the signals from the ECU are prohibited. Alpha-N programming and DTA, Motec, EFI, Split Second, and all other replacement or “piggyback” engine management systems are prohibited.
  - 7. ECU software is free so long as the ECU remains stock in every other way.
  - 8. BMW CCA Club Racing may specify ECU software (chip) for each allowable engine/chassis at any



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time.

9. Exhaust systems are free after the stock header, which must remain. Catalytic converters, resonators, and mufflers may be removed or replaced. The exhaust must exit from under the car in the stock location. The car must meet the BMW CCA Club Racing sound limits, and also the local limits of any track or event.
10. Machining for balancing purposes only is allowed and must be within factory tolerances.
11. Pistons must be factory pistons for the specific engine (for example, M50B25 engines cannot use M52 pistons), and no larger than the first factory overbore of 84.230 mm (+-0.25 mm).
  - a. Pistons may be replaced with OE equivalent pistons provided they have the same dimensions (including valve reliefs) and weight.
12. Factory or OE metallic thermostat housings are permitted. Aftermarket water pumps that directly replace the OE pump are permitted.
13. Engine oil coolers are free. Coolers must meet the following specific installation requirements:
  - a. All coolers mounted below the factory water radiator must be protected from debris intrusion with steel screening.
  - b. All non-factory coolers shall be isolation mounted to eliminate stress cracking.
  - c. Additional plumbing is allowed for engine oil coolers, but the oil filter must remain in the stock location.
14. Accusumps are permitted.
15. Oil Pans, pan baffles, scrapers, windage trays and oil pickups are unrestricted.
16. Motor and transmission mounts may be replaced with aftermarket parts of alternate material, but must be the same height as stock.
17. Solid mounts are allowed. Aftermarket transmission mount stiffening devices are allowed.
18. Spark plugs, ignition coils and boots may be replaced with OE equivalent parts.
19. Engine swaps are permitted. An engine from another eligible model may be installed. The only engines allowed are M50B25, M50B25TU, and M52B28. The SpecE36 vehicle must comply with all the specific rules based on the new engine.
20. An electrical cut-off switch, as defined in the Safety Section, is required.
21. Fuel type restrictions as listed in the Stock section remain in place.
22. Traction control systems may be removed or disabled.
23. Cruise control systems may be removed or disabled.
24. Oxygen sensor simulators may be used to replace the post-cat O<sub>2</sub> sensors on OBD-II cars provided they do not perform any other function.
25. The oil pump shaft and sprocket may be altered or replaced for reliability as long as improved reliability is the only purpose and result of the alteration. The bolt may be safety-wired, or the shaft and sprocket may be replaced with aftermarket units that have improved attachments (for example, splined). The sprocket must remain the same size and have the same number of teeth as the original part.
26. Engine Internal components:
  - a. Valve guides may be replaced with OE equivalent parts.
  - b. Valves may be replaced with OE equivalent parts constructed of the same materials.
  - c. Valve lifters may be replaced with OE equivalent parts
  - d. Valve Keepers may be replaced with OE equivalent parts.
  - e. Engine bearings and bushings may be replaced with OE equivalent parts.



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27. Engine Gaskets (including head gaskets) may be replaced with OE equivalent parts.
28. ASC throttle bodies may be removed and replaced with an OE non ASC intake boot.
29. Evaporative emissions equipment may be modified or removed.
30. The main engine chain tensioner may be upgraded to part number 11 31 7 838675.
31. Engine blocks may be bored and sleeved to allow the use of original BMW pistons.
32. M52 2.5L engine bottom end (short blocks) may be used in conjunction with a M50TU cylinder head assembly for SE36 325 applications.

### H. Cooling System

1. Any radiator may be used, providing it is mounted in the original location, maintains the same plane as the original core, and requires no body or structure modifications to install. Screens of 0.250-inch minimum mesh may be mounted in front of the radiator and/or oil cooler(s) and contained within the bodywork.
2. The mechanical (engine-driven) cooling fan may be removed or replaced. Electrically operated fans with manual or automatic actuation may be fitted.
3. Cooling system hoses may be replaced by those made of alternate materials.
4. Thermostats may be removed or replaced by alternate temperature thermostat units.
5. The plastic shrouds above and behind the radiator may be removed.
6. The coolant expansion tank may be replaced with an aftermarket tank of equivalent capacity and function of a BMW OE tank.

### I. Suspension/Steering

1. The "trunk kit" for the dampers and springs is specified in the Spec E36 Components List in the appendix. All cars must use these components without modification and in their entirety.
2. Sway Bars are open to any commercially available swaybar specified for a BMW E36 but must utilize the stock mounting locations and mounting brackets. Swaybar adjustments will utilize either individual hole or sliding collars. No other adjustment mechanisms are allowed. Remote adjustable or bladetype bars are not permitted.
  - a. Adjustable links for the front and Rear sway bars may be fitted.
3. Camber Plates/Upper front shock mounts
  - a. Adjustable front camber plates to achieve suspension settings are allowed. Adjustable camber plates must be commercially available and specified for the E36 chassis. Mounting points may not be welded, slotted, machined or otherwise modified for additional adjustment.
  - b. Alternatively, the upper front shock mounts and fixed camber plates may be the OE factory parts and Tire Rack fixed camber plate listed in the original Spec E36 components list.
  - c. The negative camber setting at either front wheel may not exceed -4.5 degrees through any method or combination of methods. There is no negative camber limit for the rear wheels.
  - d. The BMW factory front shock tower reinforcement plate (part number 31-31-2-489-795) is allowed. Machining of the plate is allowed to enable proper fitment and full range of operation of either adjustable camber plates or the specified fixed camber plate.



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- e. Front camber shims located on the kingpin strut attachment bolts are allowed.
4. The body holes locating and securing suspension mounts must be unaltered and used in the original configuration to secure the mounting. No slotting, modification, or substitutes are permitted.
5. Any suspension setting not requiring machining, bending, or modification to factory parts is allowed
6. Suspension bushing materials are free, but spherical bearings may not be used unless specifically allowed.
7. Rear lower control arms
  - a. Rear lower control arms may be replaced with any commercially available, adjustable camber lower control arm specified for the E36 chassis. Lower control arm mounting points may utilize any bushing material or spherical bearings.
  - b. Alternatively, OEM rear lower control arms may be used and reinforcement (by box welding) is allowed.
8. Front control arms must be unmodified stock parts or OE equivalent aftermarket parts.
  - a. E36 M3 front lower control arms are permitted.
  - b. Meyle HD lower control arms are permitted.
  - c. Aluminum E30 or E46 lower control arms are not permitted.
9. Alternate/non-factory front control arm bushing brackets are not permitted.
  - a. Set screws to eliminate rotation of lower control arm bushings are allowed.
10. Any bolt-in front or rear shock tower brace is allowed.
11. Additional welding of sway bar pick-up points and trailing arm pick-up points for reinforcement and safety is allowed. Pick-up points must remain as per factory placement. Front sub-frame, motor mount areas, control arm pick-ups, idler arm, and steering box mounts can be strengthened for safety with additional welding. The rear sub-frame may be reinforced using BMW OE reinforcing plates part numbers 41-00-2-256-495, 41-00-2-256-496, 41-11-2-256-497, 41-11-2-256-498 or aftermarket equivalents.
12. Solid or spherical bearing rear upper shock mounts and reinforcing plates are allowed.
13. In the interest of safety, it is strongly recommended that the rear suspension lower wishbones (part # 33-32-1-092-237) be reinforced, or "boxed" by skip welding.
14. The BMW OEM X-brace (BMW part number 51-71-8-410-212) is allowed.
15. BMW front strut tower reinforcement plates (BMW part number 31-31-2-489-795) are allowed including modifications to the plates for fitment.
16. Power steering and associated components may be deleted.
17. Power steering lines may be substituted.

### J. Tires and Wheels

1. The required tire for the Spec E36 class is:
  - a. Toyo RR in size 235/40/17.
  - b. Beginning in July 2023, Toyo RR in size 245/40/17 will be allowed in addition to a).
  - c. Dry tire sizes must be the same in all four locations on the car.
2. Optional rain tire is the Toyo RA1 in 235/40ZR17.



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3. Wheels must be 17" diameter with a width no greater than 8.5" and a weight of no less than 16 pounds.
  - a. Minimum weights are unmounted, without wheel weights but including valve stems.
4. Wheel type and style is free providing the wheel meets or exceeds factory safety specs. Spacers may be used to allow wheels with offset differences. Spacers must be hub centric, or hub extenders must be used.
5. Fender and wheel openings shall remain unmodified except that rolling under, flattening or grinding any interior lip on a wheel opening is allowed for tire clearance purposes. Fender flaring is prohibited.

### K. Brakes

1. Brake pad material is free.
2. Brake calipers, caliper mountings and rotors must be as stock for the model and year of the car.
  - a. Brake caliper pins and bushings may be substituted with alternate materials.
3. Ducting of air to rotors is allowed. The addition of duct plates to the hub or strut is permitted.
4. Removal or modification of dust shields is allowed. Alternate dust shields (to allow ducting) are permitted.
5. Brake fluid is free.
6. Flexible brake lines may be replaced with braided steel over Teflon lines.
7. The emergency brakes, mechanisms, and controls may be removed.

### L. Differential

1. Case.
  - a. Only type 188 medium case differentials found in E36 six-cylinder cars may be used.
  - b. Smaller case 168 differentials from four-cylinder cars are not allowed.
2. Ratio. 3.15:1.
3. Differential units may be open, welded, or limited slip.
4. Limited Slip Differential (LSD)
  - a. Only BMW OE ZF clutch limited slip units will be allowed. Aftermarket LSD units such as Quaife, Torsen, and KAAZ are not permitted. The Torsen unit found in some BMWs is not permitted. The ZF LSD unit is used in E36 325 applications and is commonly found in all six-cylinder LSD applications through 1995. BMW OE ZF LSD units may be swapped into an E36 open-case differential to build a LSD differential.
  - b. The number of clutches and ramp angle must remain as stock. Lockup percentage shall not exceed 25%. Shimming to exceed 25% lock is not permitted.
  - c. The maximum break away torque for any non welded differential is 70 ft/lbs.
5. Finned, larger-capacity differential covers may be used.
6. Vent tubes and catch tanks are permitted.
7. Differential mount bushings are free.

### M. Transmission/Flywheel Assembly

1. The transmission type original to the car must be utilized. Model 325 must utilize a Getrag S5D 250G transmission and a model 328 must use a ZF s5D 320G transmission. No changes are permitted to the case or internals. Transmissions may be sourced from alternate models provided they are the same Getrag 250G or ZF 320G transmission.
2. Vent tubes and catch tanks are permitted.



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3. The shifter mechanism and knob may be modified or replaced. The shifter mechanism is defined as the entire shifter assembly including, the shift knob, lever, boot, bushings, selector rod, shift lever arm circlips, washers, etc.
4. The stock dual mass flywheel may be used. Additionally certain single mass flywheels matching the OEM size and weight for the specific model car may be used. Currently accepted single mass flywheel conversion kits are available for both 325 and 328 models from Valeo. The legal part numbers are: 52281208 for 325 models and 52401210 for 328 models.
5. The clutch and pressure plate shall have the same weight and have the same size and number of clutch disk(s) as originally equipped for the chassis and model. Aftermarket replacements are allowed but must be otherwise identical to the stock configuration and weight. No M3 components may be used.
6. Automatic transmission cars may be converted to manual transmission cars, provided only BMW factory/OE parts are used (as required by these rules). Only parts required to make the conversion may be changed, and all automatic car parts must be fully swapped-out for manual car parts. All such parts must exactly match those normally found on manual transmission cars.

### N. Body/Chassis/Interior

1. The body must be the same material as supplied by the factory.
2. Any body repair or reinforcement must follow that as described in the factory-authorized repair manual or bulletins.
3. Ducting of air to rotors – Fog lights and covers may be removed to facilitate ducting of air to the brake rotors and engine.
4. At least one headlight must remain in place and be functional.
5. The driver's seat may be any racing seat that meets BMW CCA Club Racing safety standards.
6. The passenger seat may be removed.
7. The rear seats must be removed.
8. Any ballast to meet weight must be placed entirely in the passenger side front and/or rear floor area and/or the spare tire well in the trunk, and must be securely bolted to the chassis.
  - a. Each segment of ballast shall be fastened with a minimum of two 12 mm bolts and positive lock nuts of SAE Grade 8 or better, and shall utilize large diameter, load-distributing washers.
9. Steering wheels, pedal covers, and shift knobs are free.
10. Dead pedals may be added.
11. Quick-release steering wheel attachments are allowed.
  - a. It is recommended that steering locks be disabled.
12. Aero/Bumpers
  - a. Only spoilers as originally equipped for the chassis/model/ year/engine are allowed.
  - b. No splitters are allowed.
  - c. No M-Technic body kits are allowed, whether a factory option or not.
  - d. No wings are allowed.
  - e. BMW and aftermarket M3 front bumper covers are allowed.
  - f. Early and late model Non-M E36 bumper cover may be used interchangeably on both 325 and 328 models.
13. Modifications to the underside of the vehicle for the purpose of improving aerodynamics are not allowed. Any factory-installed underbody aerodynamic components originally installed are permitted.



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14. The Interior, except for the dash, may be removed.
  - a. The “interior” is defined to include carpeting, seats, headliner, sound-deadening materials, trim panels, trunk trim, door panels, console, entertainment and navigation systems, speakers, sun visors, central locking system, door mechanisms, **cruise control mechanisms** and the sunroof mechanism. **Any components associated with the above mentioned interior components may also be removed.**
  - b. If the sunroof mechanism is removed, the original panel must either be securely sealed (bolted/welded/bonded) or secured in place with two retaining straps one-inch wide and extending three inches beyond the sunroof opening on each side. The panel must be flush with the roofline.
15. Exterior sound-deadening materials and undercoating may be removed.
16. The original factory wiring harness must be retained, but unused portions of the wiring may be removed.
17. The OE front driver and passenger door decorative panels may be replaced with 0.060-inch aluminum material, securely attached to the door.
18. **Front side window** glass and window actuator mechanisms may be altered or removed.
19. Both front doors must be capable of being opened from both inside and outside the car.
20. Four-door cars may have their rear right and left decorative door panels removed.
21. **Rear side** glass must remain intact or **be replaced by Polycarbonate of sufficient thickness and securely attached.**
  - a. Actuator mechanisms may be removed.
22. All heating and air conditioning components may be removed. It is suggested, but not required, that the defroster remain functional.
23. Spare tire, tools, tool kits, and associated assemblies may be removed.
24. The interior mirror may be replaced with any interior mirror meeting or exceeding the visibility of the factory part.
25. The battery size, type, chemistry, and weight are free, but must be 12-volt units. Additional battery hold-downs are encouraged. Batteries must be located in the standard right side trunk well location.
26. The side moldings (or “beltline” moldings) between the front and rear wheel openings may be removed. The holes for mounting and/or the depression for mounting the moldings may be filled in.
27. The hood liner may be removed.
28. The plastic shroud under the hood at the base of the windshield may be removed.
29. The front inner fender liners may be removed.
30. Fuel filler restrictors may be removed from fuel filler neck.
31. The windshield washer fluid reservoir, pump, and associated hoses may be removed.
32. **A mid chassis jack point may be added as spelled out in the BMW CCA Club Racing Safety Rules on Cage Construction.**

### O. Fuel System/Fuel Tank

1. **Unleaded pump fuel with a maximum octane rating of 93 is the only fuel allowed.**
2. The stock fuel tank and pumps as originally supplied for the chassis/model/year/engine shall be used.
3. **“Fuel Starvation Kits” that include a second in-tank fuel pump and/or additional plumbing may be installed, provided their only purpose is to prevent low fuel level starvation problems. Additionally OBDII cars may back fit OBDI fuel pump, sender and siphon as configured on the early (1992- 1994)**



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E36 325s solely for the purpose of eliminating fuel starvation.

### P. Data Acquisition/Communications

1. Data acquisition devices, including gauges, are free as long as the driver is not able to adjust any setting on the vehicle at any time while the car is in motion. These devices are to be used for information gathering only. The stock gauge panel must remain in place. The stock speedometer and tachometer must remain functional. The stock water temperature gauge may be disabled.
2. Additional gauges may be located anywhere within the cockpit, including in front of the stock gauges (that must remain functional as specified).
3. 2 way radios may be installed and utilized for voice communications only.





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### Appendix.

### SPEC E36 Components List

#### 1. Suspension – Dampers and Springs

##### Option 1

H&R E36 RSS ClubSport CoiloverKit (“E36Nurburgring matched springs and dampers, adjustable ride height: H&R Part # RSS-E36-SPEC, The Tire Rack Part # RSS-E36-SPEC).

##### Option 1A

H&R E36 RSS Clubsport CoiloverKit with substitute rear spring, H&R part number RF140130.

Note: This rear spring is only allowed to substitute into the TireRack H&R kit. It cannot be matched with the GC/Koni rear damper.

##### Option 2

- 1) Ground Control Front Suspension consisting of the following:
  - a) Ground Control Front Strut Housing, Part # GC RACE E36 M3
  - b) Koni Front Damper, Part # 8610 1437 SPGC
  - c) Eibach Front Spring, Part # 600.250.0650
- 2) Ground Control Rear Suspension consisting of the following:
  - a) Ground control height adjuster and spring perch, Part # GC RRADJUST PLUS CONE
  - b) Koni Rear Damper, Part #8641 1225 SPGC
  - c) Eibach Rear Spring, Part# 500.225.0750

##### Option 3

A combination of:

- 1) H&R Front Suspension with Ground Control/Eibach/Koni Rear Suspension

Or



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- 2) Ground Control/Eibach/Koni Front suspension with H&R Rear Suspension

Note: Mix and matching of individual H&R or GC/Koni/Eibach components on either end of the car is not allowed.

### 2. Suspension – Sway Bars

- a. Sway Bars are open to any commercially available swaybar specified for a BMW E36 but must utilize the stock mounting locations and mounting brackets. Swaybar adjustments will utilize either individual hole or sliding collars. No other adjustment mechanisms are allowed. Remote adjustable bars are not permitted.

### 3. Suspension – Front Camber Plates

- a. Adjustable front camber plates to achieve suspension settings are allowed. Adjustable camber plates must be commercially available and specified for the E36 chassis. Mounting points may not be welded, slotted, machined or otherwise modified for additional adjustment.
- b. Alternatively BMW CCA Club Racing Fixed Camber Plates are allowed. These plates are available exclusively from The Tire Rack. Part #CAMBER-SE36-1 is available for \$70, and includes the plates, stainless steel hardware, and instructions.

### 4. Suspension – Misc. (to be used in conjunction with Club Racing Fixed Camber Plate)

- a. Front upper strut bearings must be BMW Part # 31-33-2-228-345, as used on the 1995 E36 M3.
- b. BMW Part # 31-33-1-110-196 (“dust protection collar”) is required for proper assembly of the suspension kit.
- c. BMW Part # 31-33-1-116-983 (“flat washer”) is required.

## H&R Suspension Kit Assembly Tips

1. A washer and dust protection collar is required between the upper spring plate and strut bearing. The washer is required so that loads are properly transmitted to the strut bearing.
2. Proper assembly order is:
  - a. Upper spring plate
  - b. Washer - BMW Part # 31-33-1-116-983
  - c. Dust protection collar - BMW Part # 31-33-1-110-196
  - d. Strut bearing.
3. The washer is required to properly transmit loads to the strut bearing