January, 2012 – Version 2012.1

NASA Spec Miata® Challenge

Official National Rules

1. Definition and Claim

   1.1. The NASA Spec Miata Challenge ™ (SMC) is an affordable racing series, primarily focused on road racing, and shall function as an advertising and marketing tool for the series sponsors, the independent sponsors of each team, as well as the official sanctioning body of the series. The trade name, "NASA Spec Miata Challenge," and these rules are the property of the National Auto Sport Association, Incorporated ® located at P.O. Box 21555, Richmond, CA 94820; 510-232-NASA (6272).

   1.2. The marks "Mazda" and "Miata" are recognized as registered to Mazda Motor Corporation with the United States Trademark and Patent Office.

2. Intent

   2.1. The intent of these rules is to provide mandates to ensure that all vehicles are constructed and modified within clearly established limits, so as to ensure an even platform, in which a contest of driving skill may provide the most talented drivers with great rewards.

3. Purpose

   3.1. The purpose of this series is to provide an avenue to promote sponsor brand awareness on a national scale. Additionally, this series should provide a stage to showcase driving talent, in hopes that the most talented drivers will advance to even higher-level professional series.

4. Format

   4.1. Modifications, addition or removal of parts are not allowed, unless specified or approved in these rules. Additional modifications are not permitted. These rules are not intended as guidelines; rather they shall serve as the national set of rules, and must be strictly followed. Each NASA Region is responsible for ensuring that all competitors running in the corresponding regional championship conform to these rules. Replacement parts not specified by these rules must be OEM or the exact equivalent.

5. Eligible Manufacturers

   5.1. Mazda Motor Corporation is the only manufacturer of models that are legal for this series. However, other companies, including Mazda Competition Parts, which should be considered a separate company from Mazda Motor Corporation, may manufacture some legal and/ or required parts and components.

6. Eligible Models

   6.1. See Appendix A

7. Sanctioning Body

   7.1. The NASA Spec Miata Challenge ™ series is sanctioned by the National Auto Sport Association (NASA). All events are governed by these rules, applicable addendums, prima fascia rules, 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.

8. Safety

   8.1. General

      8.1.1. All safety standards not specified herein must conform to the NASA Club Codes and Regulations (CCR). Where conflicts are found between the CCR and these rules, these rules must supersede the conflicting rules found in the CCR. However, in the interest of

safety, any participant that determines a conflict exists must immediately report it to the series administration, for clarification.

8.1.2. Hardtop may be used, and if used, must be securely bolted in place. Aftermarket hard tops are allowed provided they meet the exact original equipment specifications for both design and weight

8.1.3. Mazda Logo must be placed on both rear quarter panels and Mazdaspeed logo must be placed on furthest forward portion of the hood.

9. Measurements

9.1. Specified Measurement

9.1.1. Whenever the manufacturer specifications or these rules do not specify a measurement, the common average measurement will be used. This common average measurement must be determined by either 1) calculating a mean average of at least three measurements from the corresponding parts found on other vehicles, or 2) the series technical administrator will make a determination based on any other reasonable method, providing that the data, system, or logic that was used be made known to the public. The second option is only permitted under circumstances where option number one becomes impractical, as determined by the series Race Director.

9.2. Tolerances

9.2.1. All published measurements infer a tolerance of +/- one-half (1/2) of the last specified decimal place. All rounding will be done to the nearest decimal place that is specified by the manufacture or these rules. In a case where a measurement falls exactly on the halfway mark, it must be rounded up or down in favor of the competitor. This section does not apply whenever the manufacturer specifications, or these rules, specify a tolerance.

10. Weight

10.1. Minimum – Vehicle See Appendix A

The 2012 minimum weights are subject to change amid the season to adjust for competition.

10.2. Additional Weight - Ballast

10.2.1. Additional weight may be added to the vehicle providing that all of the following conditions are met:

10.2.2. Additional weight must serve no other purpose than to increase the weight of the vehicle. This additional weight shall be known as “ballast.”

10.2.3. Ballast must be made of solid metal, and must be installed securely.

10.2.4. All pieces of ballast must be bolted within the passenger compartment, through the floor pan on the passenger side of the cockpit.

11. Engine

11.1. General

11.1.1. All engines, components, and parts must have been offered for sale in a Mazda Miata, sold by a dealer in the United States of America unless otherwise specified in these rules.

11.1.2. All engines and their internal components must remain stock, except as provided by these rules, and within factory specified tolerances unless otherwise specified ~~below~~ within this document.

11.2. Balancing and Lightening: Lightening of engine parts and engine components is not permitted. Balancing of Crankshaft and Flywheel is permitted; minimum weights listed in these rules must be maintained.

11.3. Cooling System: Ethylene glycol-based anti-freeze is not permitted. Other additives, such as Redline Water Wetter, are permitted.

11.4. Radiator: Any radiator may be used, provided that it mounts in the stock location, without any modification of any part of the stock mounting location that is integral to the body. Any additional open areas or holes created by use of a non-OEM radiator may be blocked off, but under no circumstance shall the open areas or holes be used for supplying the air filter with additional air. At least one functional stock OEM cooling fan must be mounted in one of the stock locations.

11.5. Thermostat: Thermostats are optional and unrestricted, providing that they serve no other function than to control coolant flow from the engine to the radiator.

11.6. Seal Plate: Radiator Seal Plate PN NA75-50-0K7A approved for use on all vehicles. Racer tape or similar and insulating foam strips may be used to seal gaps between radiator, radiator core support, and plastic under-tray. Racer tape or similar may also be used in lieu of, or in conjunction with, seal plate to seal the top of the core support. Purpose of this rule ~~11.3.3~~ is to help direct as much air as possible through the radiator to facilitate engine cooling

11.7. Heater Core: The heater core may be bypassed, but not removed or modified in any way. The rubber hoses that supply water to the heater core may be shortened or eliminated.

11.8. Milling / Surfacing: The engine block and/ or cylinder head may be trued or milled as needed to return the engine to the maximum specified compression ratio. See Appendix A for appropriate compression ratios

11.9. Camshafts: Camshafts shall comply with the Official NASA Camshaft Specifications and 12.1.10 of this document. OEM cams are required. Cams ground from blanks or reground cams are not acceptable. No mixing of cams between engine models. Cams must be installed in their original location.

~~Cast iron cylinder sleeves may be installed to restore stock dimensions~~

12. Engine Modifications

12.1. General

12.1.1. No modifications to this engine are allowed, except where specifically authorized within these rules. This includes, but is not limited to, all fuel injection and engine management components, as well as electrical, cooling, and lubrication systems. All systems are subject to test procedures and must conform to OEM specifications as stated in the Mazda factory service manual.

12.1.2. Permitted engine maintenance includes the replacement, but not modification, of external engine and engine systems parts. No balancing, blue printing, lightening, polishing, or other modification of moving parts of the engine is permitted. All parts in the engine must be stock Mazda OEM parts unless specified in this rule set. For all Mazda part numbers in these specifications, superseding part numbers are considered equivalent.

12.1.3. Block: The engine block may be decked/milled to achieve the factory specified compression ratio for the correct model year as listed. Honing of cylinders is permitted to a maximum standard diameter as shown in the following table:

Model Year	Maximum Standard Diameter (inches)
90-93	3.076
94-05	3.273

12.1.3.1. Cast iron cylinder liners (sleeves) ~~may be installed to restore damaged or worn cylinder bores to the original dimension. Re-boring to over size is prohibited.~~ as previously permitted may be used through the 2012 season **but may not be used at the 2012 NASA Championship event or beyond** (sleeves will not be allowed in 2013).

12.1.3.2. The cylinders may be bored .010” over to a maximum overbore diameter shown in the following table:

Model Year	Maximum Overbore Diameter (inches)
90-93	3.086
94-05	3.283

12.1.3.3. If one or more cylinders is overbored or exceeds the maximum standard diameter specified in paragraph 1, the vehicle shall meet the “minimum weight with overbored motor” specified in the vehicle specifications therefore be required to have a higher minimum weight.

12.1.4. Crankshaft: The stock Mazda Miata crankshaft must be used with no modifications allowed, as shown in the following table, which also displays minimum weights (not including pilot bearing or hardware).

Model Year	Part Number	Minimum Weight (lbs)
90-93 (short nose)	B617-11-300	26.50
90-93 (long nose)	B6S7-11-300A	26.50
94-05	BP06-11-300D	35.60

12.1.5. Main and rod bearings must not be modified in any way. OEM bearings must be used from within the standard ranges as allowed in the Mazda factory service manual. The crank triggers must not be altered or modified in any way. The crank pulley/balancer must not be altered or modified in any way.

12.1.6. Connecting Rods: Mazda part number B6S7-11-210E must be used. Minimum connecting rod weight with cap and bolts and nuts is 537 grams.

12.1.7. Pistons: Mazda OEM standard size pistons must be used. Minimum weights less wrist pin and hardware and minimum weights of wrist pins are shown in the following table.

Model Year	Part Number	Minimum Weight (w/o wrist pin & hardware in grams)	Minimum Weight Wrist Pin (grams)
90-93 (standard)	B6Z2-11-SA0C	271.5	86
90-93 (.010" over)	B6Z2-11-SB0C	TBD	TBD
94-97 (standard)	BPY11-11-SA0A	291.5	80
94-97 (.010" over)	BPY1-11-SB0A	TBD	TBD
99-00 (standard)	BPZ0-11-SA0	288	78
99-00 (.010" over)	BPY1-11-SB0A	TBD	TBD
2001-05 (standard)	BPZ3-11-SA0	288	78
2001-05 (.010" over)	BPY1-11-SB0A	TBD	TBD

12.1.8. ~~The use of oversize pistons is not permitted.~~ No modification of the piston is permitted. Modification of the piston ring end gap width is allowed.

12.1.9. Cylinder Head: The gasket face of the cylinder head may be resurfaced provided the maximum compression ratio is not exceeded and the minimum height of the cylinder heads are maintained. The minimum heights of the cylinder heads as measured in the factory service manual allowed are shown in the following table.

Model Years	Minimum Height (inches)
90-93 (1.6L)	5.2450
94-05 (1.8L)	5.2450

12.1.9.1. The cylinder head must not be ported, polished, or machined. The original casting must not be modified in any way or polished unless specified below.

12.1.9.2. The throat area of the port consists of the 90 degree angle at the very bottom of the cast steel valve seat as it transitions to the aluminum casting below. It is permitted to plunge cut the throats in order to correct for core shift that is commonly found in many cylinder heads. This cut cannot extend further than the specified number below from the bottom of the ferrous valve seat. There can be no tooling or machine marks in the head below this point. The area under the seat where the plunge cut ends and the casting resumes cannot be blended by hand, machined, or chemically processed to create a smooth transition. The 90 degree bend at the bottom of the valve seat and the aluminum directly below it will be measured with a gauge and must conform to the maximum diameters and depths listed below.

12.1.9.3. No aluminum in the bowl area (other than that specified for the plunge cut) or the ports may be removed, added, or manipulated for any reason. It is understood that heads may look slightly different from bowl to bowl due to casting irregularities. No material may be removed or added from the short turn radius in the port.

12.1.9.4. All dimensions in the following table will be measured with go/no go tooling.

Engine	Maximum Intake Throat Diameter (inches)	Maximum Exhaust Throat Dimensions (inches)	Maximum Throat Depth (from bottom of ferrous valve seat (millimeters)
1.6L	1.0950	0.9480	12.0
1.8L	1.1780	1.0200	9.0

12.1.9.5. Unshrouding of the valves is limited to the dimensions in the chart below. There must be a sharp edge where the valve relief cut meets the chamber. That edge must be present and unmodified. This area is not to be blended by hand, machined, or chemically processed to create a smooth transition. This dimension will be measured with go/no go tooling. The maximum dimensions are listed below, measuring guide centerline to chamber edge.

Engine	Maximum Intake Valve Relief Cut radius (inches)	Maximum Exhaust Valve Relief Cut radius (inches)
1.6L	0.6870 Radial	0.6000 Radial
1.8L	0.7600 Radial	0.6750 Radial

12.1.10. Camshaft: Camshafts must comply with the official camshaft specifications as supplied by the SCCA Club Racing Tech Department (see Appendix B). The camshaft and crankshaft sprockets must be as supplied by Mazda. Cam timing must not be altered; the belt must be installed as specified in the Mazda factory service manual.

12.1.11. Valves: OEM valves must be as supplied by Mazda. Valve location or angle must not be moved. Reshaping of the valves is strictly prohibited. Valve guides may be replaced provided the position of the valve is not changed and the replacement guides are Mazda OEM parts. Valve stem installed height must be per the Mazda factory service manual: Valve stem seals must be Mazda OEM parts. Valve seats may be cut provided the valve seat angles are stock Mazda three angle cut, as defined below.

12.1.11.1. A valve job will consist of only three flat angles; radius cuts are not allowed. A 45 degree seat angle must be used, which may vary in width from .030 inch to .050 inch. To narrow or correctly position the face angle, a bottom angle of 70 degrees must be used. To narrow or correctly position the face angle, a top cut of 30 degrees may be used. All angles must stay on the cast steel block portion of the seat. The angles must not extend off the seat into the aluminum casting at the top or bottom of the seat. In addition, for the 99-00 models a maximum L dimension of 1.815" is permitted.

12.1.12. Valve Springs: Valve springs are Mazda OEM as specified in the Mazda factory service manual. Valve spring shims are not permitted except the one standard shim that is used under every valve spring. Only the Mazda shim may be used and the OEM dimensions must be maintained.

12.1.13. Compression Ratio: Maximum allowed compression ratios are shown in the following table.

Model Years	Compression Ratio
90-93	9.4:1
94-97	9.0:1
99-00	9.5:1
01-05	10.0:1

12.1.14. Carbon may be removed from combustion chambers, valves, and pistons.

12.1.14.1. Intake Manifold: The intake manifold must be stock Mazda parts, without any material added or removed. No coating is permitted on the exterior or interior of the manifold. Injectors must be stock Mazda OEM parts, correct for the model year of the car. All air entering the intake tract shall pass through the fuel injection air inlet.

12.1.14.2. 1.6L cars

- May replace the stock air box with a cone style air filter assembly. The air filter element is unrestricted. No ducting or baffling of air to the air filter is permitted.
- May open and adjust, but not modify, the OEM airflow meter. For 1.6L cars, the position of the air flow meter may be moved provided it remains attached to the unmodified factory intake tube.

12.1.14.3. 1.8L cars

- Must use the stock air box, but the air filter element is unrestricted. Mass air flow sensors may not be modified, adjusted or opened.
- Must use an air restrictor plate. The restrictor plate must be placed between the throttle body and plenum. All intake air must pass through the restrictor plate. Restrictor plates must be the proper size as listed in the specification table, must

be from ~~Mazdaspeed Motorsports Development or from~~ SCCA Enterprises 303-693-2111, and must not be modified.

13. Induction / Exhaust / Fuel Systems

13.1. Throttle Restrictor: The 2012 throttle restrictor sizes are subject to change amid the season to adjust for competition.

- 1994 - 97 1.8L engine powered vehicles must use a forty-five (45.0) millimeter throttle restrictor.
- 1999 - 2000 1.8L engine powered vehicles must use a thirty-eight (38.0) ~~thirty-seven (37.0)~~ millimeter throttle restrictor.
- 2001 and up 1.8L engine powered vehicles must use a forty (40.0) ~~forty-one (41.0)~~ millimeter throttle restrictor.

13.1.1. The throttle restrictor shall be placed between the throttle body and plenum. All intake air shall pass through the restrictor plate. Restrictor plates must be the proper size as listed in the Specification Table, must be from Mazdaspeed SCCA Enterprises, and must not be modified.

13.2. Air Filter

13.2.1. 1600cc engine powered vehicles may use a cone-type air filter assembly. The air filter assembly may include integrated or attached components that may serve the purpose of shielding ONLY the air filtration element and air intake tube prior to the AFM from radiant engine heat. Any pieces attached to the air filtration element or intake tube may extend no further than 1.5 inches in any direction from the filtration element or from the air passage within the intake tube and may not shield, overlap or protect the AFM itself from engine heat.

13.2.2. 1.8L engine powered vehicles must use the stock air filter housing.

13.2.3. Any filter may be used, providing that it is comprised of components and materials other than air cooling systems, cooling chemicals, or cooling chemical compounds. No devices such as ducting or air deflectors are permitted to direct air to the air filter.

13.2.4. Definition

13.2.4.1. For the purposes of Section 12.2, “cooling systems,” “cooling chemicals,” and “cooling chemical compounds” means any system or substance that enables a transfer of heat, by convection, conduction, or radiation that causes the air entering the engine to be cooler than ambient, and / or contain additional chemicals than normally found in ‘air’ as defined by the Handbook of Physics and Chemistry (CRC).

13.3. Fuel Filler: The fuel filler trap door and restrictor plate in the filler neck may be removed.

13.4. Ignition System

13.4.1. Any spark plug and/or spark plug wires may be used.

13.4.2. Any initial ignition timing may be used.

13.4.3. For 1999-2005 model years only, it is permitted to alter the ignition timing by elongating the mounting holes of the crankshaft position sensor trigger wheel

13.5. Exhaust System

13.5.1. The stock down pipe must be used. However any single exhaust pipe may be used, providing that it has a maximum outside diameter of 2.25 inches (+ 0.0625 tolerance). The stock muffler may be retained, discarded, or replaced with any other muffler, providing that it serves no other purpose than to quiet the exhaust. All exhaust must exit aft of the rear sub-frame. Stock exhaust heat shielding may be removed.

13.5.2. A cat replacement tube may be installed. The tube shall not exceed 17.5” in length and have an outside diameter no greater than 2.375”.

13.6. Air Flow Meter: 1600cc cars may open and adjust, but not modify, the OEM air flow meter. For 1600cc cars the position of the airflow meter may be moved provided it remains attached to the unmodified factory intake tube.

13.7. Fuel: Fuel usage is restricted to unleaded gasoline commonly found at retail pumping stations (Shell, Chevron, Citgo, etc.). Octane is limited to a maximum of 94 (R+M)/2 as labeled on the pump. Race fuels such as, but not limited to, ERC brand are prohibited. All fuel additives are illegal, per the CCR. Note- event supplemental rules supersede this section.

13.8. Fuel Pressure: Any adjustable mechanical fuel regulator may be used, but it may not be adjustable from the cockpit

14. Transmission / Clutch & Flywheel / Differential

14.1. Transmission: Transmission must be unmodified other than updating or backdating replacement parts. Gear ratios must remain stock for the year of car.

14.2. Clutch System and Flywheel

14.2.1. Pressure Plate All cars shall use either the stock OEM pressure plate for the appropriate model year or the following:

- ACT/Mazdaspeed p/n: 0000-02-5401-SS (1.6L cars) or 0000-02-5404-AC (1.8L cars)
- Exedy: MZC581 (OEM 1.6L Cars) or MZC610 (OEM 1.8L cars)
- Exedy: ZC04T (1.6 higher clamping force), and ZC12T (1.8 higher clamping force)

14.2.2. The unmodified pressure plate shall be bolted directly to the appropriate stock, unmodified flywheel. The 94 model year may utilize the flywheel from the 95-05 model years.

14.2.3. Any clutch disk may be used. The minimum weight (including the pilot bearing) is 17.6 lbs for the 1.6L and 17.1 lbs for the 1.8L. The OEM clutch line may be replaced with a steel braided line.

14.3. Differential

14.3.1. 1990 – 1993 (1.6L)

- The OEM Viscous limited slip (4.30:1) or Mazda Competition Parts; part number QN10-64-A00 (previously T0Y1-27-200 & 0000-02-5501) and a new alternate MAZDASPEED #0000-02-5500 limited slip differential is now permitted as well is allowed.
- The 90-93 Miata may convert to the 99-05 differential housing and the 4.3 differential gear ratio from the 99-05 model years (this conversion includes the driveshaft and half-shafts). The original 90-93 model rear suspension uprights must be retained.

14.3.2. 1994 -1997 (1.8L)

- The OEM 4.10:1 Torsen limited slip or 4.10:1 open differential is allowed. Optionally, the 4.30:1 rear axle ratio as found in the 99+ cars is permitted. The original 94-97 model rear suspension uprights must be retained
- The 4.30:1 gear will be mandated for use during the NASA Championship event.
- Use of the 90-93 differentials is not permitted.

14.3.3. 1999 – 2005 (1.8L)

- Stock Torsen limited slip or open differential is allowed, 4.30:1 gear ratio must remain stock.
- Use of the 90-93 differentials is not permitted.

15. Suspension Components

15.1. Suspension modifications are limited to the addition of the MAZDASPEED Motorsports Development “Spec Miata kit” and those modifications detailed in this area.

15.2. MAZDASPEED Motorsports Development Spec Miata kit

- 1990-93 1.6 DOHC K-SPEC-M5-SUSP
- 1994-97 1.8 DOHC K-SPEC-M5-SUS8
- 1999-up 1.8 DOHC K-SPEC-M5-SUS9

15.3. The following is a breakdown of components supplied within these kits. All parts numbers are MAZDASPEED Motorsports Development parts numbers. No substitution of parts is allowed. The kits must be used in their entirety.

15.3.1. Shocks

- Front Bilstein 0000-04-5225-BL (and Bilstein Part numbers: B46-1488 or 24-014885)
- Rear Bilstein 0000-04-5226-BL (and Bilstein Part numbers: B46-1489 or 24-014892)

15.3.2. Springs

- Front Eibach ERS 700 lbs/6” 0000-04-9700-06
- Rear Eibach ERS 325 lbs/7” 0000-04-9325-07

15.4. Coil-Over kit: Front / Rear 0000-04-5402AW

15.5. Anti-Roll Bars

15.5.1. K-SPEC-M5-SUSP

- Eibach kit - front / rear bars 0000-04-5302-EB
- Front 24mm Adjustable
- Rear 15mm Adjustable

15.5.2. K-SPEC-M5-SUS8

- Eibach kit - front / rear bars 0000-04-5303-EB
- Front 27mm non-Adjustable or adjustable 24mm front bar from Eibach kit 0000-04-5302-EB may be used. However, the 24mm must be used for the duration of the NASA Nationals event.
- Rear 15mm Adjustable

15.5.3. K-SPEC-M5-SUSP98

- Eibach kit – front / rear bars 000-04-5304-EB
- Front 27mm non-Adjustable
- Rear 15mm Adjustable

15.6. All cars shall use either the unmodified Mazdaspeed bump stop (Part #0000-04-5993AW) included with the Mazdaspeed suspension kit or the Fatcat Motorsports Spec Miata kit FCM-MT-KIT-SM along with the 1999 shock hats specified below. The Fatcat Motorsports kit must be used in its entirety. Cars built with the original procedure of welding a 63.5 mm centering ring to the outside diameter of 58 mm are grandfathered if the logbook was issued prior to 01/01/2003.

15.7. 1999-up cars shall use the bump stops from the Mazdaspeed kit (p/n 0000-04-5993-AW) in conjunction with the 1999-up stock upper mount (p/n: NC10-28-340C), the upper mount bushing (p/n: NC10-28-775) and the upper mount washer (p/n: NC10-28-774). All other OEM upper mounting hardware shall be discarded.

15.8. 1990-1997 cars may use the bump stops from the Mazdaspeed kit (p/n 0000-04-5993-AW) in conjunction with the 1999-up stock upper mount (p/n: NC10-28-340C), the 1999-up lower mount bushing (p/n: NC10-28-776) and the 1999-up upper mount washer (p/n: NC10-28-774). All other OEM upper mounting hardware shall be discarded. Only Mazda OEM parts sourced from Mazda

or Mazdaspeed are acceptable. OEM equivalent parts are not acceptable. The shock hats must be installed as a set of four, one on each shock assembly.

15.9. If the 99 shock hats are in use by 90-97 cars, the addition of “shock hat spacers” between the upper bumpstop perch and the shock hat are allowed. They must be made of aluminum and they must be installed as a set of four, one per shock hat. The dimensions of the spacers are as follows:

- ID: 2.30” to 2.60”
- OD: 3.70” to 4.15”
- Inner Thickness: .300” to .350”
- Total Thickness: .350” to .550”
- Middle Diameter: 3.485” to 3.52”
- (See Appendix C for diagram)

15.10. Subframe braces may be updated to stock 1997 configuration utilizing the MAZDASPEED Motorsports Development Spec Miata kit.

15.11. Camber: Any front and rear camber is allowed within the normal limits of adjustment. No modification to increase or decrease camber is allowed.

15.12. Ride Height: All Models may have any ride height, providing that no metal part of the vehicle touches the ground so as to be hazardous in the opinion of the Race Director.

15.13. Suspension bushings must be stock.

15.14. Sub-frame connectors

- All 1990-1991 model cars may utilize the 1992-1993 stock Mazda Miata rear sub-frame configuration.
- All 1995 and later model cars may utilize the 1994 stock Mazda Miata sub-frame connectors (front and rear).
- Alternatively, all cars may install subframe braces updated to stock 1997 configuration utilizing the Mazda Competition Spec Miata kit.
- Adjustable sway bar links may be used. One end of the sway bar(s) may be disconnected as a suspension tuning aid. The bar must remain in place and be solidly attached to the suspension on one end. A locating ring for the rear anti-roll bar may be added; it must serve no other purpose.
- (Since the latest design rear anti-roll bar has incorporated a locating ring a locating collar may be added to existing anti-roll bars.)14.6 The front shock tower connector/brace is not permitted on the 1999 and newer cars

15.15. 1990-97 cars are permitted to use the “R” model tie rod ends part # N021-32-280A

16. Steering

16.1. Manual or power steering may be used; power steering rack may be converted to manual.

16.2. Steering lock may be removed.

16.3. Steering rack on 1990-97 cars may be shimmed between the rack and subframe at its two mounting locations. Each rack mount utilizes two bolts; both bolts must pass through each shim at that location. Shims must be the same dimensions and be made from aluminum or steel. Total thickness of shims can not exceed 12.70mm (0.50 inch) in thinness/width.

17. Wheel Assembly

17.1. Rims: Any fifteen (15.00) inch diameter rim, with a maximum width of seven (7.00) inches, and a minimum weight of thirteen (13.00) pounds, may be used. All four (4) rims must dimensionally match. Other than the stock fifteen (15) inch Mazda steel wheels, all wheels must be one piece. (i.e. No multi piece bolted, riveted, or welded wheels.)

17.2. Tires: Toyo Proxes RA-1 tires must be used. The 205-50-15 size must be used. Shaving is allowed.

17.3. Track Width

17.3.1. The front track shall not exceed 1450.00 mm

17.3.2. The rear track shall not exceed:

- 1465.00 mm for the 90-97 model years.
- 1475.00 mm for the 99-05 model years.

17.4. Aftermarket wheel studs, lug nuts, and wheel spacers are permitted. If spacers are used they shall be no greater than 13mm and equal per axle.

18. Brake System

18.1. Brake pads are unrestricted.

18.2. Steel braided brake lines may be used.

18.3. Disc brake backing plates may be removed.

18.4. The emergency brake level and/or cables and associated parts may be removed.

18.5. All anti-lock braking systems (ABS) must be disabled.

19. Appearance

19.1. Exterior

19.1.1. Air dams, wings or spoilers are not allowed other than “R” package chin spoiler. The 99 and up car may use the factory OEM chin spoiler available for these cars. Part numbers NC10-V4-900F (99-00) and N067-V4-900G (01-05)

19.1.2. Fenders and wheel openings must remain unmodified, except that rolling or flattening of inner fender lip for tire clearance is permitted.

19.1.3. Hood and inner fender plastic trim are optional and may be removed.

19.1.4. Any mirrors may be used or removed.

19.1.5. Any paint scheme / colors may be applied.

19.1.6. Body molding, antennas, license plates, license plate frames, license plate lights, and insignias and emblems may be removed.

19.1.7. Windshield clips and rear window straps are permitted and recommended.

19.1.8. Hood clips are permitted. Stock hood latches may be disabled or removed.

19.1.9. Horn and it wires may be removed.

19.2. Interior

19.2.1. The driver’s seat must be replaced with a seat suitable for competition, including a racing-type bucket seat. Factory seat tracks may be modified, reinforced or removed to facilitate replacement mountings provided they perform no other function. All driver seats must conform to the CCR.

19.2.2. The transmission tunnel may be modified for the purpose of installing a competition driver seat. The floor pan must remain in its original position

19.2.3. Gauges may be added, replaced, or removed. They may be installed in the original instrument(s) location using a mounting plate(s) or any other location using a secure method of attachment.

19.2.4. Other than modifications made to mount instruments and provide for roll cage installation, the remainder of the dash board and instrument panel must remain intact.

19.2.5. Any steering wheel and attachments may be used except wood rimmed type steering wheels.

19.2.6. Any shift knob may be used.

19.2.7. The air conditioning system may be removed. Modification or removal of the heater core and blower fan assembly is not permitted.

19.2.8. The carpet, center console, cargo bins, driver's seat belt, radio system, headliner, dome lights, and grab handles may be removed.

19.2.9. The driver's side floor mat must be removed.

19.2.10. All insulating material may be removed from the interior and trunk.

19.2.11. Other than to provide for the installation of required safety equipment or other authorized modifications, no other driver/passenger compartment alterations or gutting is permitted.

19.2.12. Removal; or substitution of driver compartment panels is not permitted.

19.2.13. Any removable covers used to cover spare tires, tools, bins, etc. may be removed along with attaching hardware and brackets.

19.2.14. Carpets, mats and their insulating or attaching materials may be removed from the floor and recesses of the cargo/spare tire area.

19.2.15. Ducting may be added to provide fresh air to the driver/passenger compartment, providing that no modifications of windows and body structure are made to accommodate this addition. The "wing window(s)" may be removed to accommodate the addition of legal driver cooling devices such as hoses, vent tubes, or air-inlets.

19.2.16. The passenger seat, mounting hardware, and seat belts may be removed. Spare tire and tools must be removed from trunk.

19.2.17. The foot pedals (i.e. brake, clutch, gas) may be modified for driver comfort and accessibility. Additionally, modifications for strengthening are allowed provided that those modifications serve no other purpose.

19.2.18. The door window glass, window operating mechanism, and inside door latch/lock operating mechanism may be removed and the inner door structural panel may be modified, but not removed. The stock side impact beam and the outside door latch/lock operating mechanism shall not be removed or modified. This gutting of the door shall only be made if roll cage incorporates NASCAR-style side protection extending into the door.

19.2.19. To improve driver exit through the window area, the driver vent window and vent window supports may be removed. If removed, ducting may be in the passenger side vent window only.

APPENDIX A

The 2012 throttle restrictor sizes and minimum weights are subject to change amid the season to adjust for competition

Spec Miata Specification Table

	Bore x Stroke(mm) / Displ. (cc)	Valves IN & EX (mm)	Restrictor Size (mm)	Comp. Ratio	Wheelbase (mm)	Gear Ratios	Final Drive	Brakes (mm)	Weight (lb)
Mazda MX-5 / Miata (90-93)	78.0 x 83.6 1597 Or Alternate 78.25 x 83.6	31.1 (I) 26.3 (E)	N/A	9.40	2266.00	3.14, 1.89, 1.33, 1.00, 0.81	4.3	(F) 235 Vented Disc (R) 232 Solid Disc	2300.00 OR Alternate Or 2315.00 with Alternate Bore
Mazda MX-5 / Miata (94-97)	83.0 x 85.0 1839 Or Alternate 83.25 x 85.0	33.1 (I) 28.2 (E)	45mm	9.00	2266.00	3.14, 1.89, 1.33, 1.00, 0.81	4.1	(F) 255 Vented Disc (R) 252 Solid Disc	2350.00 Or 2365.00 with Alternate Bore
Mazda MX-5 / Miata (99-00)	83.0 x 85.0 1839 Or Alternative 83.25 x 85.0	33.1 (I) 28.2 (E)	38mm	9.50	2266.00	3.14, 1.89, 1.33, 1.00, 0.81	4.3	(F) 255 Vented Disc (R) 252 Solid Disc	2400.00 Or 2415.00 with Alternate Bore
Mazda MX-5 / Miata (01-05)	83.0 x 85.0 1839 Or Alternative 83.25 x 85.0	33.1 (I) 28.2 (E)	40mm	10.00	2266.00	3.14, 1.89, 1.33, 1.00, 0.81	4.3	(F) 255 Vented Disc (R) 252 Solid Disc	2400.00 Or 2415.00 with Alternate Bore

APPENDIX B

P.O. Box 21555, Richmond, CA 94820, (510) 232-6272, (510) 412-0549 fax

SCCA SPEC MIATA Cam Specifications
Effective Date: 10/15/07

VEHICLE: 90-93 Mazda Miata

Lobe(s): Intake

LIFT	DUR.	OPEN	CLOSE	AREA
0.010	219.41	9.42 BTDC	29.98 ABDC	21.49
0.020	209.30	4.52 BTDC	24.78 ABDC	21.26
0.030	202.58	1.24 BTDC	21.35 ABDC	21.16
0.040	196.91	1.55 ATDC	18.45 ABDC	21.05
0.050	191.74	4.09 ATDC	15.83 ABDC	20.92
0.060	186.92	6.49 ATDC	13.41 ABDC	20.78
0.070	182.31	8.78 ATDC	11.09 ABDC	20.62
0.080	177.81	11.01 ATDC	8.82 ABDC	20.45
0.090	173.36	13.22 ATDC	6.58 ABDC	20.25
0.100	168.93	15.43 ATDC	4.36 ABDC	20.03
0.150	146.32	26.73 ATDC	6.95 BBDC	18.56
0.200	120.91	39.43 ATDC	19.66 BBDC	16.28
0.250	90.28	54.77 ATDC	34.95 BBDC	12.86
0.300	37.86	81.01 ATDC	61.13 BBDC	5.51
0.309	--- PEAK CAM LIFT ---			

Lobe(s): Exhaust

LIFT	DUR.	OPEN	CLOSE	AREA
0.010	231.18	34.76 BBDC	16.42 ATDC	22.73
0.020	220.34	30.00 BBDC	10.34 ATDC	22.47
0.030	213.54	26.70 BBDC	6.84 ATDC	22.37
0.040	207.72	23.83 BBDC	3.89 ATDC	22.25
0.050	202.43	21.22 BBDC	1.21 ATDC	22.13
0.060	197.45	18.74 BBDC	1.29 BTDC	21.98
0.070	192.64	16.34 BBDC	3.69 BTDC	21.82
0.080	187.95	14.00 BBDC	6.05 BTDC	21.71
0.090	183.32	11.69 BBDC	8.37 BTDC	21.42
0.100	178.70	9.39 BBDC	10.68 BTDC	21.19
0.150	154.89	2.52 ABDC	22.59 BTDC	19.65
0.200	128.03	15.94 ABDC	36.03 BTDC	17.44
0.250	94.08	32.93 ABDC	52.99 BTDC	13.35
0.300	36.83	60.32 ABDC	80.85 BTDC	5.65
0.309	--- PEAK CAM LIFT ---			

Dowel Pin location:

	Cylinder 1 lobes	Cylinder 2 lobes	Cylinder 3 lobes	Cylinder 4 lobes
Intake	83.0 degrees BTDC	7.0 degrees ATDC	7.0 degrees ABDC	83.0 degrees BTDC
Exhaust	79.5 degrees ATDC	10.5 degrees BBDC	10.5 degrees BTDC	79.5 degrees ABDC

Base Circle:

	Minimum	Maximum
Intake	1.285 inches	1.302 inches
Exhaust	1.285 inches	1.302 inches

Tolerances:

Duration at the seat (0.0" - 0.02")	2.5 degrees
Duration on flank (0.1" lift – 0.1" before max. lift)	1.5 degrees
Duration over nose	3.5 degrees
Peak lift	0.003 inches
Dowel pin location	2.0 degrees

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SCCA SPEC MIATA Cam Specifications
Effective Date: 10/15/07

VEHICLE: 94-97 Mazda Miata

Lobe(s): Intake

LIFT	DUR.	OPEN	CLOSE	AREA
0.010	215.41	7.30 BTDC	28.11 ABDC	21.37
0.020	205.84	2.83 BTDC	23.01 ABDC	21.30
0.030	198.92	0.65 ATDC	19.57 ABDC	21.21
0.040	193.07	3.47 ATDC	16.54 ABDC	21.11
0.050	187.91	6.01 ATDC	13.92 ABDC	20.99
0.060	183.14	8.37 ATDC	11.52 ABDC	20.86
0.070	178.59	10.62 ATDC	9.22 ABDC	20.71
0.080	174.16	12.82 ATDC	6.98 ABDC	20.55
0.090	169.82	14.98 ATDC	4.80 ABDC	20.36
0.100	165.53	17.12 ATDC	2.65 ABDC	20.16
0.150	143.95	27.89 ATDC	8.17 BBDC	18.81
0.200	120.14	39.80 ATDC	20.06 BBDC	16.72
0.250	90.97	54.40 ATDC	34.63 BBDC	13.42
0.300	46.47	76.69 ATDC	56.84 BBDC	7.24
0.316	--- PEAK CAM LIFT ---			

Lobe(s): Exhaust

LIFT	DUR.	OPEN	CLOSE	AREA
0.010	232.13	35.34 BBDC	16.71 ATDC	24.21
0.020	220.43	29.94 BBDC	10.48 ATDC	24.06
0.030	213.07	26.41 BBDC	6.66 ATDC	23.95
0.040	206.97	23.44 BBDC	3.53 ATDC	23.83
0.050	201.56	20.77 BBDC	0.79 ATDC	23.70
0.060	196.55	18.29 BBDC	1.73 BTDC	23.56
0.070	191.84	15.96 BBDC	4.12 BTDC	23.39
0.080	187.28	13.70 BBDC	6.42 BTDC	23.21
0.090	182.84	11.50 BBDC	8.67 BTDC	23.01
0.100	178.47	9.33 BBDC	10.86 BTDC	22.80
0.150	156.89	1.40 ABDC	21.71 BTDC	21.40
0.200	133.78	12.93 ABDC	33.28 BTDC	19.32
0.250	106.65	26.49 ABDC	46.86 BTDC	16.20
0.300	70.03	44.80 ABDC	65.16 BTDC	11.09
0.337	--- PEAK CAM LIFT ---			

Dowel Pin location:

	Cylinder 1 lobes	Cylinder 2 lobes	Cylinder 3 lobes	Cylinder 4 lobes
Intake	81.0 degrees BBDC	9.0 degrees ATDC	9.0 degrees ABDC	81.0 degrees BTDC
Exhaust	79.5 degrees ATDC	10.5 degrees BBDC	10.5 degrees BTDC	79.5 degrees ABDC

Base Circle:

	Minimum	Maximum
Intake	1.402 inches	1.419 inches
Exhaust	1.408 inches	1.425 inches

Tolerances:

Duration at the seat (0.0" - 0.02")	2.5 degrees
Duration on flank (0.1" lift – 0.1" before max. lift)	1.5 degrees
Duration over nose	3.5 degrees
Peak lift	0.003 inches
Dowel pin location	2.0 degrees

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SCCA SPEC MIATA Cam Specifications
Effective Date: 10/15/07

VEHICLE: 99-00 Mazda Miata

Lobe(s): Intake

LIFT	DUR.	OPEN	CLOSE	AREA
0.010	254.32	23.43 BTDC	50.89 ABDC	23.99
0.020	223.26	11.01 BTDC	32.25 ABDC	23.78
0.030	214.89	7.13 BTDC	27.76 ABDC	23.68
0.040	209.04	4.28 BTDC	24.76 ABDC	23.57
0.050	204.06	1.82 BTDC	22.24 ABDC	23.46
0.060	199.44	0.48 ATDC	19.93 ABDC	23.34
0.070	194.91	2.75 ATDC	17.66 ABDC	23.19
0.080	190.41	5.01 ATDC	15.41 ABDC	23.02
0.090	185.91	7.26 ATDC	13.17 ABDC	22.83
0.100	181.41	9.51 ATDC	10.92 ABDC	22.61
0.150	158.66	20.91 ATDC	0.43 BBDC	21.19
0.200	133.76	33.62 ATDC	12.62 BBDC	19.00
0.250	103.77	49.06 ATDC	27.17 BBDC	15.62
0.300	61.02	71.12 ATDC	47.86 BBDC	9.39
0.324	--- PEAK CAM LIFT ---			

Lobe(s): Exhaust

LIFT	DUR.	OPEN	CLOSE	AREA
0.010	278.84	56.02 BBDC	42.82 ATDC	26.34
0.020	233.13	35.67 BBDC	17.46 ATDC	26.01
0.030	222.30	30.90 BBDC	11.40 ATDC	25.88
0.040	215.79	27.76 BBDC	8.04 ATDC	25.72
0.050	210.69	25.25 BBDC	5.43 ATDC	25.65
0.060	206.06	22.95 BBDC	3.11 ATDC	25.52
0.070	201.54	20.69 BBDC	0.85 ATDC	25.38
0.080	197.04	18.44 BBDC	1.40 BTDC	25.21
0.090	192.53	16.18 BBDC	3.65 BTDC	25.02
0.100	188.03	13.93 BBDC	5.90 BTDC	24.70
0.150	165.61	2.71 BBDC	17.10 BTDC	23.40
0.200	142.71	8.80 ABDC	28.49 BTDC	21.39
0.250	116.27	22.16 ABDC	41.56 BTDC	18.41
0.300	82.10	39.43 ABDC	58.47 BTDC	13.69
0.348	--- PEAK CAM LIFT ---			

Dowel Pin location:

	Cylinder 1 lobes	Cylinder 2 lobes	Cylinder 3 lobes	Cylinder 4 lobes
Intake	80.0 degrees BTDC	10.0 degrees ATDC	10.0 degrees ABDC	80.0 degrees BTDC
Exhaust	80.0 degrees ATDC	10.0 degrees BBDC	10.0 degrees BTDC	80.0 degrees ABDC

Base Circle:

	Minimum	Maximum
Intake	1.402 inches	1.419 inches
Exhaust	1.408 inches	1.425 inches

Tolerances:

Duration at the seat (0.0" - 0.02")	2.5 degrees
Duration on flank (0.1" lift – 0.1" before max. lift)	1.5 degrees
Duration over nose	3.5 degrees
Peak lift	0.003 inches
Dowel pin location	2.0 degrees

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SCCA SPEC MIATA Cam Specifications
Effective Date: 10/15/07

VEHICLE: 01-05 Mazda Miata

Lobe(s): Intake

LIFT	DUR.	OPEN	CLOSE	AREA
0.010	256.29	25.07 BTDC	51.22 ABDC	26.62
0.020	226.81	12.96 BTDC	33.84 ABDC	26.42
0.030	218.60	9.09 BTDC	29.51 ABDC	26.32
0.040	212.75	6.25 BTDC	26.50 ABDC	26.22
0.050	207.82	3.81 BTDC	24.00 ABDC	26.05
0.060	203.23	1.52 BTDC	21.71 ABDC	25.98
0.070	198.69	0.76 ATDC	19.45 ABDC	25.83
0.080	194.16	3.03 ATDC	17.18 ABDC	25.66
0.090	189.64	5.29 ATDC	14.92 ABDC	25.47
0.100	185.16	7.54 ATDC	12.70 ABDC	25.26
0.150	162.74	18.78 ATDC	1.52 ABDC	23.86
0.200	140.26	30.02 ATDC	9.72 BBDC	21.89
0.250	116.96	41.70 ATDC	21.34 BBDC	19.26
0.300	88.91	55.81 ATDC	35.28 BBDC	15.39
0.350	46.96	76.92 ATDC	56.12 BBDC	8.52
0.369	--- PEAK CAM LIFT ---			

Lobe(s): Exhaust

LIFT	DUR.	OPEN	CLOSE	AREA
0.010	278.84	56.02 BBDC	42.82 ATDC	26.34
0.020	233.13	35.67 BBDC	17.46 ATDC	26.01
0.030	222.30	30.90 BBDC	11.40 ATDC	25.88
0.040	215.79	27.76 BBDC	8.04 ATDC	25.72
0.050	210.69	25.25 BBDC	5.43 ATDC	25.65
0.060	206.06	22.95 BBDC	3.11 ATDC	25.52
0.070	201.54	20.69 BBDC	0.85 ATDC	25.38
0.080	197.04	18.44 BBDC	1.40 BTDC	25.21
0.090	192.53	16.18 BBDC	3.65 BTDC	25.02
0.100	188.03	13.93 BBDC	5.90 BTDC	24.70
0.150	165.61	2.71 BBDC	17.10 BTDC	23.40
0.200	142.71	8.80 ABDC	28.49 BTDC	21.39
0.250	116.27	22.16 ABDC	41.56 BTDC	18.41
0.300	82.10	39.43 ABDC	58.47 BTDC	13.69
0.348	--- PEAK CAM LIFT ---			

Dowel Pin location:

	Cylinder 1 lobes	Cylinder 2 lobes	Cylinder 3 lobes	Cylinder 4 lobes
Intake	86.0 degrees BTDC	4.0 degrees ATDC	4.0 degrees ABDC	86.0 degrees BTDC
Exhaust	80.0 degrees ATDC	10.0 degrees BBDC	10.0 degrees BTDC	80.0 degrees ABDC

Base Circle:

	Minimum	Maximum
Intake	1.402 inches	1.419 inches
Exhaust	1.408 inches	1.425 inches

Tolerances:

Duration at the seat (0.0" - 0.02")	2.5 degrees
Duration on flank (0.1" lift – 0.1" before max. lift)	1.5 degrees
Duration over nose	3.5 degrees
Peak lift	0.003 inches
Dowel pin location	2.0 degrees

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APPENDIX C

Shock Hat Spacer Dimensions