



Spec MX-5 Rules and Regulations

2006 - 2015

Vehicle Technical Specifications

Technical Infraction Penalties

1.3.2023

(Rules Changes made in 2023 in Red Font)

Table of Contents

| | |
|--|-------|
| 2006-2015 Spec MX-5 Rules and Regulations Overview | 3-4 |
| 1. Vehicle Weight | 5 |
| 2. Chassis | 5-6 |
| 3. Body | 7-8 |
| 4. Cockpit / Trunk | 8-10 |
| 5.1. Engine – General | 10-11 |
| 5.2. Engine – Block | 11 |
| 5.3. Engine – Crankshaft | 11-12 |
| 5.4. Engine – Connecting Rods | 12 |
| 5.5. Engine – Pistons | 12 |
| 5.6. Engine – Cylinder Head | 12-13 |
| 5.7. Engine – Camshaft and Camshaft Timing | 13 |
| 5.8. Engine – Valves | 13-14 |
| 5.9. Engine – Valve Springs | 14 |
| 5.10. Engine – Intake Manifold | 14 |
| 5.11. Engine – Intake System | 14 |
| 5.12. Engine – Fuel System | 14-15 |
| 5.13. Engine – Lubrication System | 15 |
| 5.14. Engine – Engine Control Unit | 15-16 |
| 5.15. Engine – Miscellaneous | 16 |
| 6. Exhaust | 16-17 |
| 7. Cooling System | 17-18 |
| 8. Clutch, Pressure Plate and Flywheel | 18 |
| 9. Transmission | 18-19 |
| 10. Differential | 19 |
| 11. Suspension and Steering | 19-21 |
| 12. Hubs | 21 |
| 13. Brakes | 21-22 |
| 14. Wheels | 23 |
| 15. Tires | 23 |
| 16. Electrical Equipment | 23-24 |
| 17. Roll Cage | 24 |
| 18. Safety | 25 |
| 19. Data Acquisition | 25 |
| 20. Video | 25-26 |
| 21. Parts Confiscation | 26 |
| 22. Penalties | 26 |

2006 - 2015 Spec MX-5 Rules and Regulations

These rules and regulations govern the technical specifications of the Spec MX-5 race car while participating and competing in the Sports Car Club of America (SCCA), National Auto Sport Association (NASA), American Endurance Racing (AER), World Racing League (WRL), ChampCar, Lucky Dog Racing League, and Spec MX-5 Challenge Series. For general vehicle requirements not outlined in this document, refer to the SCCA current GCR Section 9.

Spec MX-5 Purpose and Intent

Based on four pillars: affordability, reliability, tech-ability, and fun to drive, the Spec MX-5 car provides the membership with the opportunity to compete in similarly prepared, low cost, 2006-2015 production-based MX-5 car with limited modifications, intended to help deliver the most fair and competitive racing competition in club racing.

Authorized Spec MX-5 Vehicle Modifications

Only the left-hand drive, North American-version of the 2006-2015 Mazda MX-5 convertible & power retractable hardtop (PRHT) are eligible. The original OEM vehicle identification number (VIN) stamped on the firewall must correspond with the model year automobile as classified. VIN plates or stampings must remain in place, with the firewall VIN taking precedence.

A Mazda Factory Shop Manual for the specific make, model, and year of automobile is required to be in the possession of each entrant. The manual may be in the form of printed material, microfiche, CDs, DVDs, and/ or Internet access to manufacturer sponsored web-based databases. The manual is intended to aid scrutineers in identifying parts and the configuration of the automobile.

The items outlined in this VTS document represent the only modifications and safety items permitted and/or required on Spec MX-5 vehicles other than safety items as required in SCCA's current GCR Section 9. Parts and components may not perform an unauthorized function (i.e. Modifications must be stated as authorized or cannot be done).

If the Mazda Factory Manual or these rules provide only a partial specification or no specification at all, the Mazda parts may not be modified beyond what is permitted in these rules. Compliance will be determined by comparison to new parts and/or the parts compliance measurement listing delivered by Mazda. Other approved parts with only a partial specification or no specification available in these rules may not be modified. Compliance will be determined by comparison to new parts and/or the parts compliance measurement listing from the supplier.

Assembly, rebuild, and refurbishment procedures, and all associated dimensions must adhere to the published factory service procedures, except as otherwise stated in these rules. No components may be added or omitted from those specified by the published factory service procedures. All components must be standard dimensions. It is permitted to use industry standard procedures to repair damaged components.

The use of any painting, coating, plating, metal treatment process or impregnating substance (e.g., anti-friction, thermal barrier, oil shedding coatings, chrome, anodizing, REM, isotropic finishing, etc.) to any internal engine surface, internal axle components, internal transmission or differential surface, internal or external surfaces of the intake manifold, exhaust manifold or down tube, is prohibited.

Spec MX-5 Penalties

To ensure the most fair and competitive competition in club racing, Mazda built the car on four pillars (outlined in "Purpose and Intent"), and has further reinforced parity by establishing a strict and significant technical infraction penalty model. Rules violations will not be tolerated and will be handled with relatively severe penalties as outlined in Section 21. In addition, all Spec MX-5 entrants must be members in good standing within the Mazda Team Support Program. Spec MX-5 rewards the drivers and teams who are competitive by operating within the rules.

Vehicle Technical Specifications (VTS) with Penalties

1. Vehicle Weight

- a. Minimum vehicle weight with driver is 2,525lb.
- b. Ballast
 - I. If ballast is required to meet the required minimum weight, it must be added as follows:
 - i. A ballast base plate must be securely mounted using the OEM passenger seat mounting bolt holes and bolts. Any number of additional segments of ballast may be attached to the base plate.
 - ii. Each segment of ballast must be fastened to the base plate with a minimum of two (2) one-half (1/2) inch bolts/studs and positive lock nuts of SAE Grade 5/ Metric 8.8 or better and must utilize large diameter, load distributing washers. In lieu of positive lock nuts it is permitted to positively thread the additional segments of weight into the base plate.
- c. Holes are not permitted to be drilled in the floor pan to mount ballast.

2. Chassis

- a. Towing eyes per SCCA's current GCR Section 9.3 are required. There must be an arrow that strongly contrasts with the vehicle paint scheme pointing to each tow strap.
- b. OEM strut tower brace is required; it is comprised of three (3) components; see Table 1 for part numbers.
- c. An engine to fender brace located on the passenger side of the engine bay may be used if mounted in such a way that it does not foul brake lines, fuel lines, or other systems that would interfere with the safe operation of the vehicle under race conditions – see 2.h.1 for allowed modifications. (Mazda Motorsports PT# 0000-07-5600) (6.14.2022)
- d. Disabling or removing of the door locking mechanism must be performed.
- e. To facilitate frequent lifting of the vehicle, a 3/4" boxed tube not to exceed 12" long may be added under the rocker panel inboard of the factory pinch weld flange on each side of the vehicle.
- f. Convertible tops/power retractable hard tops (PRHT) and attaching hardware must be completely removed.
- g. All chassis, structural, and electrical repairs, if performed, must be in concurrence with factory procedures, specifications, and dimensions. Unless specifically authorized by the manufacturer for repair or permitted by these rules, no reinforcement (e.g., seam welding, material addition, etc.) is permitted.
- h. Removal of excess wiring is permitted provided it serves no other purpose and does not splice or interrupt the OEM harnesses. Removal of the following systems is permitted: audio equipment; power

seats; airbag/supplemental restraint systems components; heated seats; interior lighting; power windows; and power door locks. (No additional wiring may be added except as permitted in other sections - e.g., Section 16: Electrical Equipment.)

Table 1: Strut Tower Brace Parts

| Description | Mazda Part # |
|-------------------------------------|--------------|
| Right Side of Strut Tower Brace | NE57-56-48X |
| Left Side of Strut Tower Brace | NE57-56-49X |
| Center Section of Strut Tower Brace | NE57-56-48ZA |

1. A hole is permitted to be drilled in part #'s NE57-56-48X and NE57-56-49X to allow for access to the shock adjuster screw is permitted (it is recommended that the hole not be larger than 15mm); NE57-56-48X may be modified in order to allow room for the engine passenger side engine brace; no other modifications or other braces are permitted. (5.7.2022)
2. MX-5 donor chassis with 16" OEM wheels require install of OEM strut tower brace (part # NE57-56-35XA).
3. To facilitate engine bay air flow for cooling purposes it is permitted to remove the section outlined below in red from OEM PT# NE57-56-35XA. Block-off plates must be installed at the fresh air vent for the HVAC module at the firewall under the cowl to isolate driver compartment from engine compartment. (*FIREWALL BLOCKOFF PLATE 0000-07-5832*) No additional modifications are permitted. (9.18.2020)



3. Body

- a. Interior and exterior door handles are required to remain operable. Alternate interior door handles or cord/strap are permitted.

- b. The driver's and passenger's side inner door structural panel may be removed to fit the cage.
- c. The stock side impact/anti-intrusion beam must not be modified or removed.
- d. Door locking mechanisms must be disabled or removed.
- e. A minimum of two (2) of the brake lights must be in working order per the current GCR Section 9.1.
- f. The two (2) OEM unmodified, external mirrors for the correct the Mazda MX-5 (left and right) are required; they must be mounted in stock location and may not be modified.
- g. OEM interior rearview mirror or an aftermarket rearview mirror must be used.
- h. 2006-2015 MX-5 bodywork may be updated or backdated, OEM body parts only. (This includes Mazda OEM accessory body parts such as trunk lid spoiler, side skirts, front air dam.)
- i. Mazda Motorsports' fiberglass headlamp replacements may be used; no modifications or substitutions are permitted; exceptions: painting, covering, and wrapping.

Table 2: Headlamp Replacement Covers

| Model Year | Mazda Part # | Description |
|------------|-----------------|-------------|
| 2006-2008 | 0000-07-5818-LT | Left Side |
| 2006-2008 | 0000-07-5818-RT | Right Side |
| 2009-2015 | 0000-07-5819-LT | Left Side |
| 2009-2015 | 0000-07-5819-RT | Right Side |

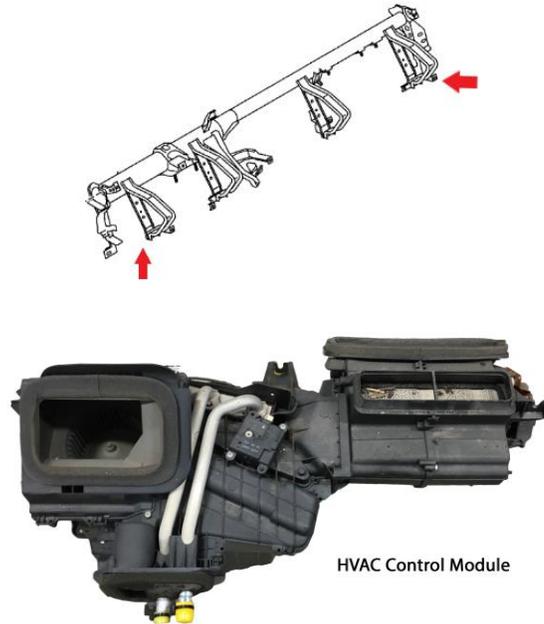
- j. Lexan windshield may be used in place of the stock windshield. (Mazda Motorsports PT# - 0000-07-5101-5S)
- k. Windshield clips per current GCR Section 9.3 windshield clips are recommended.
- l. Hood and trunk pins or clips are permitted. Factory hood and trunk latches must remain intact and operational and may not be removed, disabled or altered.
- m. Front under hood weather strip must remain intact PT#- NE51-56-750 (1.3.2023)
- n. Rear under hood weather strip must remain intact PT#- NE51-56-760 (1.3.2023)
- o. Modification of release cables is permitted to facilitate external pull/opening straps/pulls/cords.
- p. A radiator screen of .125" minimum stainless-steel mesh may be added in front of the radiator.
 - I. The screen must be a single layer and must be installed to the bumper cover and or grill and be contained entirely within the bodywork of the vehicle.
 - II. Tape may be applied to the mesh screen.
 - III. The OEM grill must remain intact. (5.7.2022)
- q. Front and rear fender lips may be rolled to prevent tire damage.
- r. Front OEM fender liners must be intact and unmodified, except for what is allowed in section 13. J regarding brake ducts. Repairs due to on track damage is allowed so long as it serves no other purpose. (8.5.2022)

- s. OEM fog lights lens/glass must be removed. This will allow for the installation of brake duct kit (Mazda Motorsports' part # 0000-03-5301-NC.) The remaining opening from the fog light lens must either be blocked or a connection must be made from the fog lamp opening/hole in the bumper fascia to a brake duct attached to the hub.
- t. Side marker lenses may be removed, and holes may be covered.
- u. OEM hard top or the unmodified Mazda Motorsports hard top (part # 0000-07-5901-CC) are permitted.
- v. PRHT chassis cars must trim the finish panel with the 3rd brake light to fit one of the approved hard tops.
 - I. Either hard top may be painted or wrapped.
 - II. OEM hard top latches must be removed and replaced with positive fasteners.
 - III. The front of the hard top may attach to the upper windshield bar of the roll cage.
 - IV. It is permitted to run one single piece of racer tape to cover the leading edge of the aftermarket hard top where it meets the factory windshield frame.
 - V. Openings beneath the hard top seal to the body are not permitted. The hard top must be securely mounted to the body of the vehicle and perform no other purpose.
 - VI. Body repair must be performed to maintain stock body contours, lips, profiles, etc. Any body repair modification must not increase clearance.
- w. To improve driver's exit through the window area, the driver and passenger vent window and vent window supporting frame may be removed as an assembly.
 - I. Vent windows may be modified to accept fresh air ducting.
- x. OEM radio antennas may be removed. Antennas for two-way radios may be added.
- y. Insulation & undercoating may be removed. (1.11.2022)
- z. All cars must run with both the front door windows fully open (i.e. fully down).

4. Cockpit / Trunk

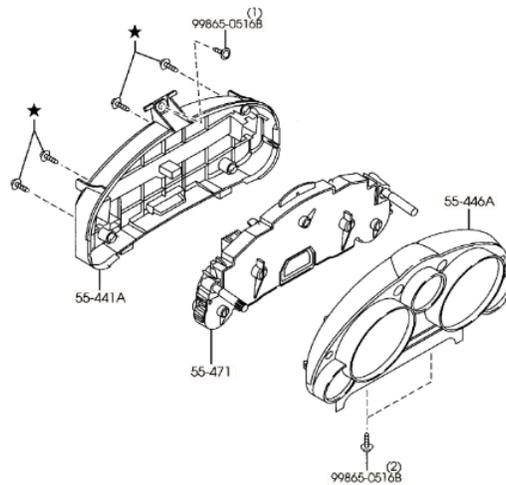
- a. All interior trim components such as carpets, seats, cargo bins, seat belts, floor mat, firewall insulation/blanket, sound deadener patches, undercoating, radio systems, speakers, dome lights, grab handles, sun visors and their insulating and attaching materials, must be removed. Other than to provide for the installation of required safety equipment or other authorized modifications, no other driver/passenger compartment alterations or gutting are permitted.
- b. It is permitted to install a radio replacement panel.
- c. The outer edges of the dashboard may be cut the minimum amount required to install the roll cage.
- d. Air bag systems must be disarmed and must be removed.
- e. It is permitted to remove all components of the cruise control system.

- f. The top portion of the door panels containing the door latch release handle must remain intact.
- g. The lower portion of the door panels must be removed for installation of the roll cage. Gutting of the door may not go outside of the factory seal.
- h. The door window glass and window operating mechanisms must be removed.
- i. The OEM dashboard and its attaching hardware and brackets must be retained.
- j. For installation of required safety equipment, however, it is permitted to modify the OEM dash bar, so long as it is outboard of the first dash support brackets (illustration below). Modification of the first dash support brackets, nor inboard from them, is not permitted. The OEM dash bar must be securely mounted.



- k. HVAC control module located under the dash may be removed to include the following: blower motor, evaporator core, heater core and associated ducting. Once removed it is permitted to block the blower inlet passage on the firewall.
- l. All openings between the driver/passenger compartment and the trunk / gas tank area that include the filler tube & fuel tank vent must be filled completely with a metal bulkhead that is securely mounted (E.G. nuts/bolts, nut-serts, rivets). This shall close the entire trunk from the driver/passenger compartment and comply with current GCR Section 9.3. (8.11.2022)
- m. Mazda Motorsports' finish panel trim kit (part # 0000-07-5822) may be used to create the required bulkhead above. (8.11.2022)
- n. It is permitted to remove the driver's side factory seat mounts, but not the floor pan.
- o. It is permitted to remove the horn and all associated horn related components.
- p. OEM driver's seat must be replaced with a one-piece bucket-type race seat per current GCR Section 9.3.
- q. The passenger seat must be removed.

- r. Any steering wheel except wood rimmed types may be used.
- s. Any shift knob may be used.
- t. The air conditioning equipment located in the engine compartment must be removed.
 - l. This equipment consists of the AC compressor, associated lines/dryer and the condenser.
- u. **Alternate gauges and instruments may be added. The original instrument cluster must remain connected and functional. However, it may be relocated to allow the mounting of an aftermarket dash such as an AiM. The wiring to relocate the dash may not be cut or extended to do this relocation, you may simply re-route it. The remainder of the dashboard or panel must remain intact. (1.3.2023)**
- v. Modifications may be made to the foot pedals to improve the comfort and accessibility to the driver; relocation of mounting points is not permitted.
 - l. Dead pedal/footrest and heel stop may be added.



- w. Instrument clusters must be unmodified OEM parts.
- x. Two-way radios may be used.
- y. Alternate means of windshield defrosting is permitted.

5. Engine Modifications

5.1. General

- a. No modifications to the engine are permitted, 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.
- b. All systems, unless otherwise stated are subject to test procedures and must conform to OEM specifications as stated in the Mazda Factory Service Manual.

- c. Permitted engine maintenance includes the replacement, but not modification, of external engine and engine systems parts.
 - I. No balancing, blue printing, lightening, polishing or other modification of moving parts of the engine.
 - II. All parts in the engine must be OEM parts unless specified in this rule set.
 - III. For all Mazda part numbers in these specifications, superseding part numbers are considered equivalent.
- d. Compression ratio for 2.0L engines must be 11.00:1; calculate using the official Spec MX-5 calculator.

5.2. Engine Block

- a. The engine block may be decked or milled to achieve the class specified compression ratio. Honing of cylinders is permitted to a maximum standard diameter as shown in Table 3.
- b. The cylinders may be bored .020" +/- piston clearance requirements over to a maximum permitted overbore diameter shown in Table 3 below.

Table 3: Piston Sizes

| Piston | Part # | Piston Size | Bore Diameter Max |
|-------------------------|-----------------|-------------------|--------------------|
| Standard | 0000-01-5310 | 87.500mm (3.445") | 87.6046mm (3.449") |
| Allowed Overbore (.020) | 0000-01-5310-OS | 88.000mm (3.465") | 88.1126mm (3.469") |

- c. It is not permitted to overbore a single cylinder; all cylinders must be bored equally.
- d. Sleeving of cylinders is not permitted.

5.3. Crankshaft

- a. OEM Mazda MZR 2.0L (2009-2015) manual transmission crankshaft (part # LF9G-11-301) must be used with no modifications except for machining or polishing of the bearing surfaces to allow the use of main and rod bearings as permitted in Table 4 below.

Table 4: Crankshaft Measurements

| Crank Journal Measurement | Minimum Rod Diameter | Minimum Main Diameter |
|---------------------------|----------------------|-----------------------|
| Imperial | 1.848" | 2.047" |

- b. OEM crankshaft (Mazda part # LF9G-11-301) must weigh a minimum of 31.75lb.
- c. Maximum permitted stroke is as follows: 3.27" / 83.1mm
- d. Shot peening is prohibited.
- e. Bearings
 - I. Main and rod bearings must not be modified; coatings are not permitted.

- II. OEM bearings are permitted.
- III. The only bearing sizes permitted other than OEM are listed in Table 5 below.

Table 5: Bearing Sizes

| Bearing Type | Minimum Bearing Width | Minimum Bearing Thickness | Minimum Bearing Weight | Part # |
|----------------------------|-----------------------|---------------------------|------------------------|-----------------|
| Main Bearings (Standard H) | .630" | 0.097" | N/A | 0000-01-5215-MB |
| Main Bearing (Standard HX) | .630" | 0.097" | N/A | 0000-01-5216-MB |
| Rod Bearings (Standard H) | .630" | 0.057" | 28g | 0000-01-5213-RB |
| Rod Bearing (Standard HX) | .630" | 0.057" | 28g | 0000-01-5214-RB |

- f. The crank trigger must not be modified; it must be installed per the Mazda Factory Service Manual.
- g. OEM crank pulley/balancer (Mazda part # LF94-11-400) must not be modified and must be installed per the Mazda Factory Service Manual.
- h. Knife edging of the crankshaft is not permitted.
- i. Modifications to the crankshaft counterweights are not permitted.
- j. Coatings, REM or metal treatments of any kind are not permitted.

5.4. Connecting Rods

- a. OEM Mazda MX-5 (2009-2015) manual transmission unmodified connecting rods (part # LF9G-11-210) must be used. Connecting rod weight with cap and bolts must not be less than 530 grams.

5.5. Pistons

- a. Mazda Motorsports' competition pistons (standard bore part # 0000-01-5310; oversized part # 0000-01-5310 OS) are required; no modification is permitted.
- b. Minimum weight of the piston, less wrist pin and hardware, must not be lighter than 290 grams.
- c. Mazda Motorsports' competition wrist pin (part # 0000-01-5310-PN) must be used.
- d. Minimum weight of the wrist pin must not be lighter than 80 grams.
- e. Modification of the piston ring end gap width is permitted.

5.6. Cylinder Head

- a. Mazda Motorsports' competition cylinder head (part # 0000-01-5300) must be used; no modifications to the cylinder head are permitted outside of the gasket face surface outlined below in Table 6.
- b. Intake runner CC volume is 182cc +/- 1cc.
- c. Exhaust runner CC volume is 114cc +/- 1cc.
- d. Combustion chamber volume may not be below 41cc.

- e. The gasket face of the cylinder head may be resurfaced provided the maximum allowed compression ratio is not exceeded.
 - I. Surfacing of the head gasket surfaced must be in a flat plane.
 - II. Cylinder head gasket surface distortion may not exceed .010mm or 0.004".
- f. The minimum height of the cylinder head as measured must be at least (TBA)
- g. The following head gaskets in Table 6 below are permitted; no other gaskets may be used.

Table 6: Head Gasket Measurements

| Description | Thickness | Mazda Part # |
|--------------------|--------------------------------|-----------------|
| OEM Gasket | 0.039" approximate crush depth | L3G2-10-271A |
| Competition Gasket | 0.55mm (0.021") | 0000-01-5319-21 |
| Competition Gasket | 0.75mm (0.030") | 0000-01-5319-30 |
| Competition Gasket | 1.0mm (0.040") | 0000-01-5319-40 |
| Competition Gasket | 1.3mm (0.051") | 0000-01-5319-51 |

5.7. Camshaft and Camshaft Timing

- a. Camshafts must not be modified; see Table 7 for OEM camshaft part numbers.

Table 7: Camshaft Part #s

| Description | Mazda Part # |
|-------------|--------------|
| Intake Cam | L3E3-12-420 |
| Exhaust Cam | L309-12-441B |

- b. Camshaft and crankshaft sprockets must not be modified; see Table 8 for part numbers.

Table 8: Camshaft Sprocket Part #s

| Description | Mazda Part # |
|----------------------|--------------|
| Exhaust Cam Sprocket | LF01-12-425 |
| Intake Cam Sprocket | LF94-12-4X0C |

- c. Cam timing must not be altered; chain must be installed as stated in the Mazda Factory Service Manual.
- d. OEM timing chain (Mazda part # LF7A-12-201) is required; no modification is permitted.
- e. OEM timing chain components must be used; see Table 9 for Mazda part numbers.

Table 9: Timing Chain Guide Part #s

| Description | Mazda Part # |
|-----------------|--------------|
| Fixed Guide | LF01-12-614 |
| Tensioner Guide | LF01-12-671 |

5.8. Valves

- a. OEM valves must not be modified (including reshaping); see Table 10 for Mazda part numbers.

Table 10: Valve Part #s

| Description | Mazda Part # |
|---------------|--------------|
| Intake Valve | LF01-12-111 |
| Exhaust Valve | LF02-12-121F |

- b. Valve location or angle must not be moved.
- c. Valve guides may not be replaced.
- d. Valve job measurements must be as follows:
 - I. 35 top 45 seat 65 bottom 77 bottom seating angle width is 1.0mm
 - II. Exhaust 40 top 45 seating to radius seating angle width 1.2 mm.
 - III. Valve stem installed height must be per the Mazda Factory Service Manual.
 - IV. Valve stem seals must be OEM.

5.9. Valve Springs

- a. Mazda Motorsports' competition valve springs (part # 0000-01-5319-SP) are required.

5.10. Intake Manifold

- a. OEM intake manifold (Mazda part # LF9G-13-130B) is required; no modification is permitted (e.g., no material may be added or removed; no painting or coating on the exterior or interior permitted).
- b. All air entering the engine must pass through the throttle body and metered by the mass airflow sensor.
- c. Removal of these factory EGR components are permitted: Valve, crossover pipe, coolant lines (*EGR DELETE KIT 0000-06-5447*)
- d. If factory EGR components are removed, the following ports must be blocked:
 - I. Intake manifold cross over pipe port.
 - II. Cylinder head cross over pipe port.
 - III. EGR valve port on back of cylinder head.

5.11. Intake System

- a. Cars must replace OEM air box with the Mazda competition cold air intake kit (part # 0000-06-5150-KT); no modification (e.g., ducting or baffling of air, venturi cones) to the cold air intake kit is permitted.
- b. No alteration to the intake tube length, diameter, or shape is permitted.
- c. The air filter supplied in the Mazda Motorsports competition cold air intake kit may be refreshed with the Mazda Motorsports' competition air filter (part # 0000-06-5204).

5.12. Fuel System

- a. Fuel must comply with SCCA GCR section 9.3.25
- b. OEM fuel pump (Mazda part # LFG1-13-350) is required; no modification is permitted.
- c. It is permitted to remove the unleaded fuel restrictor from the filler neck. (GCR 9.3.26) (6.15.2020)
- d. Mazda Motorsports' competition fuel rail that includes fuel pressure gauge, and fuel sampling test port and hose kit (part # 0000-06-5207) is optional.
 - I. Fuel pressure sensor integrated into the required AIM data acquisition system is required. It must be operational and able to be viewed when pulling a competitor on track data. (1.3.2023)
 - II. The addition of a switch or jumper located in the under-hood fuse box is allowed to activate the fuel pump. This modification may serve no other purpose.
 - III. One operational fuel sample test port is required. Fuel sample test ports shall be made from dry break fuel rated quick disconnects. No other style of fuel sample test port is allowed (e.g., Schrader valves). (1.3.2023)
 - IV. No other modifications permitted.
- e. OEM fuel pressure regulator (Mazda part # LFB6-13-280) is required.
 - I. Vehicle must run between 54 and 63 PSI of fuel pressure.
- f. OEM injectors (Mazda part # L3G5-13-250) are required; no modification is permitted.
 - I. Flow rates for the injectors must fall within the factory tolerance of 204-216ml (204-216 cc, 12.5-13.1 cu in/minute).

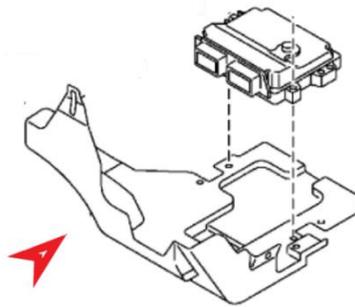
5.13. Lubrication System

- a. OEM engine oil filter is required; no substitutions permitted.
- b. Mazda Motorsports' competition oil cooler adaptor kit with lines (part # 0000-01-5100KT) is required; no modification is permitted.
- c. Oil and lubricants are unrestricted.

5.14. Engine Control Unit (ECU)

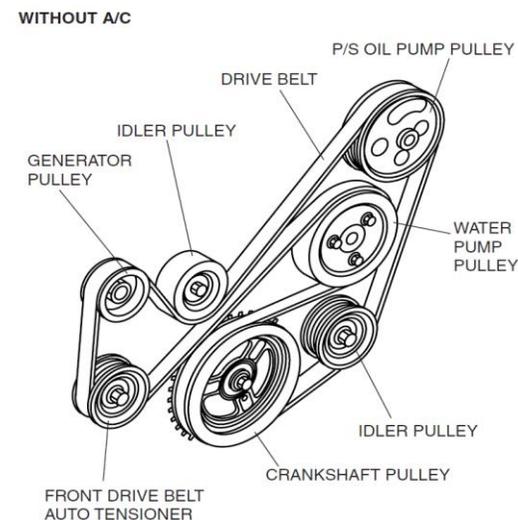
- a. Reference penalties for non-compliance of the Spec ECU flash in Section 21 below. Modification or attempted modification of the Spec ECU flash will result in a 12-month suspension from competition and \$1,000.00 fine.
- b. Mazda Motorsports' competition ECU (part # 0000-01-5379) is required; serial number must be visible; external or internal modification is not permitted.
- c. ECU calibrations and inputs must not be modified.
- d. OEM engine electrical harness (part # NH18-67-020A) is required; no modification is permitted.
- e. OBDII diagnostics port must be operational in all cars.

- I. The check engine light must be operational and perform the function test at start up.
 - II. The OBDII port must be available at all times (including during the race) for tech officials to install test equipment as necessary.
 - III. If a competitor uses the OBDII port to power any type of data acquisition system, he/she would be responsible for providing the splitter cable to plug in both units or unplug the data acquisition system.
- f. Instrument panel clusters must be operational and unmodified OEM parts.
 - g. Temporary data acquisition devices may be installed by the sanctioning body for technical compliance.
 - h. Removal of Mazda ECU insulator PT# LFG1-13-3C1 is permitted (diagram below) (4.17.2020)



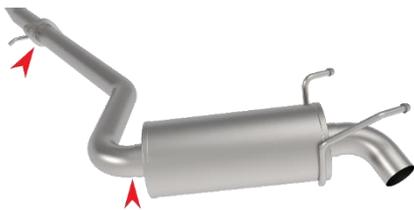
5.15. Miscellaneous

- a. The factory air conditioning system and all associated lines, compressor, condenser and evaporator must be removed.
 - I. Once the AC compressor is removed, the OEM AC pulley delete kit (Mazda part # LF17-15-940E) is required.
- b. Serpentine belt Gates PT# 6PK-2170 or same size equivalent is required.



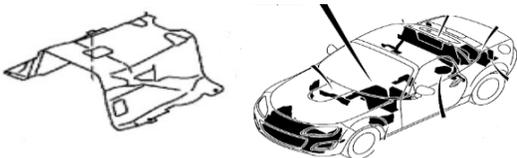
6. Exhaust

- a. OEM exhaust manifold and OEM heat shield must be replaced with Mazda Motorsports' competition part # 0000-06-5407-NC; no modification is permitted (e.g., internal or external wraps, coatings, paints, metal treatments, thermal barriers etc.).
- b. OEM exhaust system must be replaced with Mazda Motorsports' competition part # 0000-06-5427-NC; no modification is permitted (e.g., internal or external wraps, coatings, paints, metal surface treatment, thermal barriers etc.).
- c. The forward oxygen (O₂) sensor (OEM Lambda Sensor) must remain in the factory location and in full working order. Mazda Motorsports' competition O₂ sensor installation kit wiring extender (part # 0000-10-5320) is permitted.
- d. The secondary post catalytic oxygen (O₂) sensor must be removed.
- e. Heat shielding
 - I. OEM heat shield protecting ABS unit from header may not be removed or modified.
 - II. OEM muffler heat shield may not be removed or modified.
 - III. It is permitted to wrap the exhaust pipe from the mid connection flange to the muffler.
 - IV. Use of heat shielding material on transmission tunnel to replace OEM heat shielding is permitted. OEM heat shielding must be removed from transmission tunnel.



7. Cooling System ([cooling system checklist](#))

- a. Mazda Motorsports' competition radiator and oil cooler assembly (part # 0000-01-5504-CR) is required (e.g., OEM is not permitted).
- b. The radiator using the OEM mounting brackets must be installed in its original location.
- c. Oil cooler may not be moved or altered from the pre-assembled mounting location.
- d. Radiator ducting may be placed on each side of the radiator tanks and the undertray to force air through the radiator fins. The gap between the top and sides of the radiator may be sealed but shall not perform any other function.
- e. The unmodified OEM cooling fan must be maintained in full working order and mounted in the stock location. Axillary control of the radiator cooling fan may be added to activate the fan independent of the ECU, OEM control of the fan must remain intact.



- f. Thermostats may be modified, removed or replaced.
- g. OEM water pump (Mazda part # 1F70-15-100) is required; no modification is permitted.
- h. OEM water pump pulley (Mazda part # L327-15-131) is required; no modification is permitted.
- i. Engine cooling system hoses and clamps may be substituted.
- j. Heater core may be removed along with HVAC evaporator core including all associated hard pipes and hoses. This is to include OEM water to oil cooler lines as well as throttle body coolant lines. (*Rear coolant pipe 0000-01-5514, bottom coolant pipe 0000-01-5515*)
- k. OEM engine coolant expansion tank may be replaced with any aftermarket part and must not serve another purpose.

8. Clutch, Pressure Plate and Flywheel

- a. Vehicle may use any combination of the options listed in Table 11.

Table 11: Clutch Component Part Numbers

| Description | Mazda Part # |
|------------------------------|-----------------|
| Mazda Factory Clutch Disc | LF05-16-460A |
| Mazda Factory Pressure Plate | LF04-16-410A |
| ACT Sprung Clutch Disc | 0000-02-5420-AC |
| ACT Pressure Plate | 0000-02-5405-AC |
| ACT Clutch and PP Kit | 0000-02-5004-G6 |

- b. The unmodified pressure plate must be bolted directly to the stock, unmodified flywheel.
- c. OEM flywheel (Mazda part # LF9G-11-500) is required. Factory Service Manual resurfacing specification is permitted; no other modification is permitted.
- d. Alternate clutch lines are permitted and must not serve another purpose.
- e. Clutch components must adhere to the minimum weights listed in Table 12 below:

Table 12: Flywheel and Clutch Weight

| Description | Minimum Weight (lb.) |
|----------------|----------------------|
| Clutch disc | 3.5 |
| Pressure Plate | 9.4 |
| Flywheel | 15.80 |

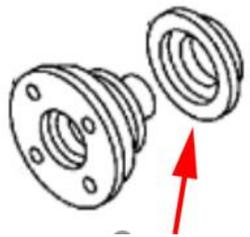
9. Transmission

- a. OEM 2006-2015 6-speed gearbox and 4.10 final drive ratio are required.
- b. No modification of the internal parts and ratios are permitted except the installation of the unmodified parts contained in the Mazda Motorsports MX-5 transmission upgrade kit (part # 0000-02-5700).

- c. Gear ratios are as follows: 1st - 3.82; 2nd - 2.26; 3rd - 1.64; 4th - 1.18; 5th - 1.00; 6th - 0.83/0.79. There are two (2) production 6th gears; either one is permitted.
- d. Alternate shift knobs are permitted.
- e. Nomex or aftermarket fireproof shift boots are permitted. Removal of factory rubber shift boot is not permitted.
- f. No treating, coating, polishing or modification of any transmission or components are permitted.
- g. Fluids and/or lubricants may be substituted with any lubricant.
- h. Updating or backdating of transmissions from 2006–2015 is permitted; unmodified OEM shifters must be retained. The use of short throw shifters is prohibited.
- i. An inspection hole (not to exceed 1.5" in diameter) in the bottom of the bell housing is permitted for the sole purpose of tech inspection of the flywheel. It is permitted to plug or tape over that hole.
- j. Transmission cooler(s) are permitted. (1.11.2022)

10. Differential

- a. Only the Following differentials are allowed.
 - I. Mazda Motorsports, unmodified, Torsen limited slip differential – 0000-02-5564 (5.7.2022)
 - II. OEM, unmodified, limited slip differential - Mazda part # MS03-27-200B
 - III. OEM, unmodified, open differential are permitted.
- b. RX-8 differential mounting bracket (Mazda part # F151-39-730B) is permitted.
- c. Mazda Comp diff bushings 0000-04-5510 is permitted (MX-5 diff mount)
- d. Polishing, metal treatment or coating of differential or axle components are not permitted.
- e. Removal of metal/rubber isolator on the pinion flange is permitted.
- f. Differential cooler(s) are permitted. (1.11.2022)



11. Suspension and Steering: Suspension modifications are limited to the addition of the Mazda Motorsports Spec MX-5 kit; details are as follows (including all modifications permitted):

- a. Mazda Motorsports' TSB MX-5-002 must be followed re: the rear shock thread protector found in the "Spec MX-5: Four Pillars" page on MazdaMotorsports.com. The thread protector must measure 1.250". (The TSB will not be applicable to the supply from Mazda Motorsports received after 7.15.2020 as they will have the updated thread protector.) (7.15.2020)

- b. OEM control arms are required; no modification is permitted.
- c. Anti-roll bar links may be replaced with Mazda part # 0000-04-5597-KT
 - I. Cockpit adjustability is not permitted.
- d. Mazda Motorsports' competition sway bars are required; mounting guidelines:
 - I. Metal shims up to 1/8" total thickness is permitted between each anti-roll bar mount shackle and the stock mounting point on the chassis.
 - II. One end of the sway bar(s) may be disconnected as a suspension tuning aid.
 - III. The bar must remain in place and be solidly attached to the suspension on one end.
 - IV. Sway bar end links must be installed on the unmodified stock attachment points.
- e. Camber, caster, and toe are unrestricted within the limits of the unmodified factory adjustments in conjunction with Mazda Motorsports front offset bushing (part # 000-04-5407-NC).
- f. Minimum ride height is unrestricted.
- g. Nuts & bolts may be replaced by similar items performing the same fastening function(s).
- h. Relocation or reinforcement of any suspension parts or mounting points not permitted; the exceptions:
 - I. Addition of spacer or washers on a horizontal plane is permitted at the rear lower shock mount to the spindle per the shock installation instructions.
 - II. Updating to RX-8 rear toe link and rear trailing arm is permitted. See Table 13.

Table 13: Permitted RX-8 Trailing Arm and Toe Link Part #s

| Description | Mazda Part # |
|-------------------|--------------|
| RX-8 Trailing Arm | F189-28-200A |
| RX-8 Toe Link | F189-28-45XA |

- i. OEM power steering pump with pulley (Mazda part # NE51-32-650D) is required; Mazda Motorsports Power steering flow restrictor PT#- 0000-04-5532 is permitted; no other modification is permitted. (6.14.22)
- j. OEM power steering rack (Mazda part #: NE51-32-110C) is required; no modification or relocation is permitted.
- k. Factory power steering reservoir may be replaced.
- l. Wheel center caps must be removed.
- m. All chassis, structural and electrical repairs must follow factory procedures, specifications, and dimensions. Reinforcement (e.g., seam welding, material addition, etc.) is not permitted.
- n. Steering lock mechanisms must be removed.
- o. The distance from the outside of the wheel rim to outside of the opposing wheel rim for both the front and rear of the vehicle must not exceed 69.0".

- l. Measurement is obtained by measuring the distance between the wheel lips by going through the wheel spokes at the bottom of the wheel at its widest point via tape measure. Measure the outside wheel lip of one wheel to outside wheel lip of the other wheel on same axle.
- p. Mazda Motorsports' competition rear toe link (part # 0000-04-5426) is permitted; no modification is permitted.
- q. Items in Table 13 seen below are components within this kit. No substitution of parts is permitted. The unmodified kits must be used in their entirety, except as specified.

Table 13: Spec MX-5 Suspension Kit (All parts are required; no modification is permitted.)

| Description | Location | Mazda Part # |
|------------------------|----------------|-----------------|
| Shocks | Front | 0000-04-5291-SA |
| | Rear | 0000-04-5292-SA |
| Springs | Front | 0000-04-9700-08 |
| | Rear | 0000-04-9400-07 |
| Helper Springs | Front/Rear | 0000-04-9926 |
| Front Penske Mount Kit | Front | 0000-04-5359 |
| Rear Penske Mount Kit | Rear | 0000-04-5358 |
| Sway Bar Kit | Front and Rear | 0000-04-5306-EB |
| Offset Bushings | Front | 0000-04-5407-NC |

12. Hubs

- a. OEM RX-8 front hub (Mazda part # F189-33-04X) may be substituted in place of the OEM Miata 2006-2015 front hub.
- b. Mazda Motorsports' competition RX-8 rear hub upgrade kit (part # 0000-04-5811-KT) may be substituted in place of the OEM MX-5 rear hubs; this unmodified kit must be used in its entirety.

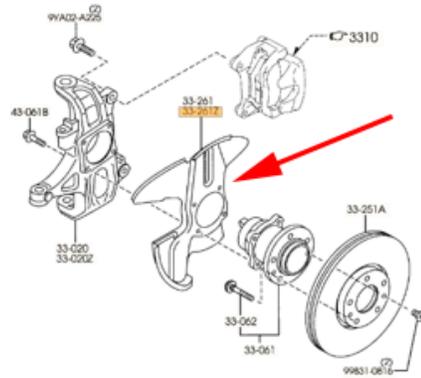
13. Brakes

- a. Stock or OEM equivalent brake rotors must be used and adhere to the specifications below in Table 14.

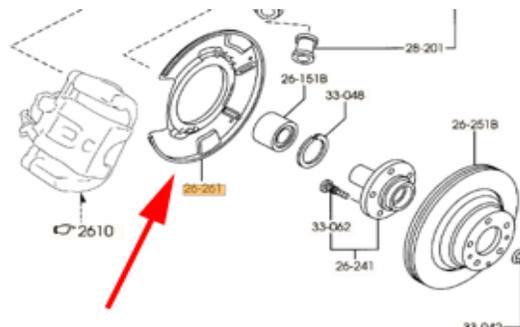
Table 14: Brake Rotor Dimensions

| Location | Diameter | Notes |
|----------|---------------|--------|
| Front | 290mm (11.4") | Vented |
| Rear | 280mm (11.0") | Solid |

b. Front backing plates/dirt shields may be removed.



c. Rear backing plates/dirt shields may be removed.



- d. Brake lines may be replaced with competition braided steel lines; option: Mazda Motorsports' part # 0000-03-5212.
- e. Factory ABS system must remain intact, unmodified and in full working order.
- f. Brake slider pin may be used in either/both front location B25D-33-694. (This prevents a stuck sliding caliper due to the rubber grommet)
- g. Parking brake mechanisms and actuating components may be removed.
- h. Brake fluid is unrestricted.
- i. Mazda Motorsports' competition brake duct kit (part # 0000-03-5301) is permitted.
- j. The forward vertical inner fender panels may be modified to fit the brake kit hose to the fog light openings but must serve no additional purpose.
- k. Mazda Motorsports' competition brake pads are required; see eligible brake pad compounds below. No other brake pads are permitted.

| Pad Style | Mazda Part # | Notes |
|-----------|-----------------|----------------|
| Front Pad | 0000-03-5104-SP | RST-3 compound |

Table 15: Brake Pads

| | | |
|----------|-----------------|-----------------|
| Rear Pad | 0000-03-5114-EN | RSL-29 compound |
|----------|-----------------|-----------------|

NOTE: Both rear pads are the same compound, just different colors. The 0000-03-5115-EN will be removed once inventory is gone.

14. Wheels - The following unmodified wheel options below in Table 16 are permitted for use.

Table 16: Wheels

| Description | Color | Mazda Part # |
|---|--------------|-----------------|
| 17x7" OEM Wheel | Gun Metallic | 99656-47070 |
| 17x7" OEM Wheel | Silver | 99656-77070 |
| Mazda Motorsports' Competition MX-5 Wheel | Gun Metallic | 0000-04-5706-GM |
| Mazda Motorsports' Competition MX-5 Wheel | Silver | 0000-04-5706-SL |

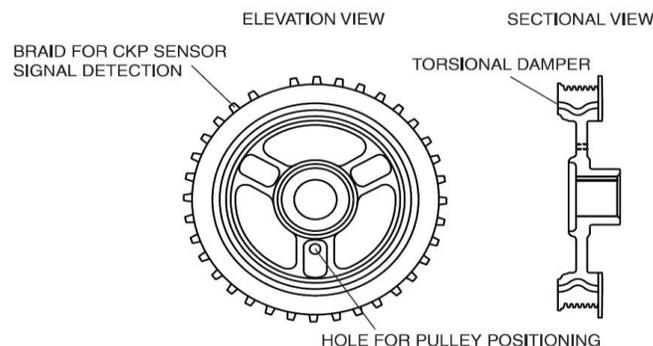
- Wheels may be painted.
- Aftermarket (any) wheel studs and lug nuts are permitted, provided that the threads must protrude beyond the lug nut with a minimum of two (2) full threads showing; studs may not be gun drilled.
- Wheel spacers are not permitted.

15. Tires

- Dry tires must be the Toyo RR P235/40/ZR17.
- Wet tires must be the Toyo RA1 P235/40/ZR17.

16. Electrical Equipment

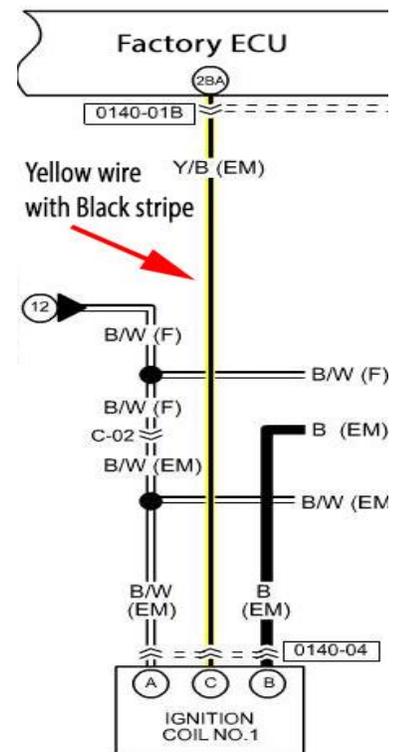
- OEM ignition coils (Mazda part # L3G2-18-100B) are required; no modification is permitted.
- Mazda's competition spark plugs (part # 0000-10-R7IX-11) are required; no modification is permitted.
- The crankshaft position sensor and crankshaft pulley relationship must be as specified in the 2006-2015 MX-5 Factory Service Manual.



- d. OEM alternator (Mazda part # LF9H-18-300R-OA) is required; no modification is permitted.
- e. The alternator must not be externally regulated or disabled in any way other than by the OEM production ECU/wiring circuit and master kill switch.
- f. The electronic control module (ECM) control circuit for alternator charging must be OEM - unmodified and operational.
- g. OEM alternator drive pulley (part # AJ51-18-W10) is required; no modification is permitted.
- h. All sensors related to engine operating parameters must be used and must be stock, unmodified Mazda parts for the correct year of the vehicle.
- i. Any and all sensors and their respective locations, mounts and wiring harness leads may not be altered except as permitted elsewhere in the Spec-MX-5 rules.
- j. Any sensors required for non-OEM gauges must be in addition to the Mazda sensors.
- k. All alternate gauge and sensors must have independent wiring. Splicing, tapping or altering of the factory engine wiring harnesses is prohibited with the exception of adding an aftermarket tachometer/shift light.
 - I. It is permitted to splice into the yellow wire with the black stripe (pin 2BA - Ignition Coil 1 control circuit) in the engine harness to obtain the tachometer signal for an aftermarket tachometer or shift light.
 - II. Splicing must be done within 5" of the ECU.
- l. Data acquisition's sensor(s) may be added, provided they do not require splicing or alteration to the factory engine wiring harness.

m. Batteries

- I. Batteries may be replaced with those of an alternate manufacturer, provided they are of similar amp-hour capacity, and size, including lead acid or AGM; lithium batteries are not permitted.
- II. Batteries must weigh no less than 18.0lb and no more than 35.0lb
- III. Additional battery hold-down devices are recommended.
 - i. **2.1.2023 sunset rule change date: Battery MUST be moved from the original location to the passenger side in the upper trunk area in front of the tail lamp. This will require the use of a bulkhead that separates the driver / passenger compartment completely from the trunk and the battery location. See section 4.I for reference. (8.11.2022)**



~~IV. To preserve power to PCM, install safety equipment, or repair accident damage to a data system, there must be no additional wiring, connections, etc. to any wiring harness or component of the car.~~

17. Roll Cage

- a. Roll cage must adhere to SCCA's current GCR Section 9.4 for Touring 4 cars; with only the following exceptions:
 - i. Vehicle may extend one tube per side from the door bars down to the rocker panel. The landing plate for this tube can be no longer than 5" in length and have one single tube not to exceed 1.75" in diameter. The landing plates need to be centered between the front and rear landing plates for the lower NASCAR or X brace bar.
 - ii. Main hoop mounting plates may be on multiple planes; however, they must not be greater than 19" on any side.
- b. Playboy MX-5 Cup car cages manufactured by Racing Cages, Inc. with the official serial number plate on the main hoop are allowed to retain the lower door bar and two 3" attachment points to the rocker panel on both the driver's side and passenger side. No additional seam welding or lengthening of the original attachment points are allowed.

18. Safety

- a. An electrical master ("kill") switch is required. See current GCR Section 9.3 Master Switch.
- b. Vehicle must be equipped with a driver's restraint system meeting the specifications of current GCR Section 9.3 Drivers Restraint System.
- c. Installation of a fire extinguisher or fire system is required. See current GCR 9.3 Fire System.
- d. Vehicle must have a driver's side window safety net complying with current GCR Section 9.3 Window Safety Nets. Nets must be mounted to provide protection in the event the driver's door opens.

19. Data Acquisition

- a. Vehicle must be equipped with AiM data acquisition system that is capable of providing on track data to AiM race studio 2/3. The data acquisition system may only **read the OBDII/ECU data stream. It is not permitted to alter/manipulate data to and from the ECU. However, if you would like to use the AiM system to trigger a switch I.E., cooling fans or diff cooler pumps this must be a separate analog circuit.** Refer to Section 16: Electrical Equipment above for installation requirements.

- b. The connection at the OBDII port for the AiM system may be made in either one of two ways. Through a dedicated OBDII AiM adaptor or direct wiring to the back of the OBDII port within 3" of the OBDII connector. (12.2.2022)
- c. Fuel pressure datalogging is required. (1.3.2023)

20. Mandatory Video Camera

- a. Vehicle is required to use at least one (1) forward-facing video recording device while on track; the following is required:
 - I. Video format must be a digital file to be viewed in an MS Windows compatible standard viewer.
 - II. Camera must capture at least the "driver's eye view."
 - III. Camera must produce files with the correct time and date.
 - IV. Failure to comply will incur penalties and logbook documentation as stated in Table 17.

Table 17: Video Camera Infractions

| Description | Penalty |
|----------------|-------------------------|
| First Offense | Warning |
| Second Offense | One (1) Race Suspension |
| Third Offense | Two (2) Race Suspension |
| Fourth Offense | One (1) Year Suspension |

Note: Penalties may be reduced or removed for instances such as mechanical failure or on-track incidents.

21. Parts Confiscation

- a. Mazda or Mazda's designated tech officials (e.g., SCCA, NASA, etc.) may confiscate competitors' parts for the purpose of verification of tech compliance. Mazda / Spec MX-5 Challenge will notify the competitor and entrant of the car within 10 days of whether the part was compliant. **Parts found to be non-compliant will not be returned to the competitor. Parts that are confiscated and found not compliant are not eligible for reimbursement/compensation in any way. (1.3.2023)**

22. Penalties – Clarification Added 8.28.2020

- a. Any entrant found non-compliant in the following areas will be penalized as follows:

| Level | Infraction | Penalty |
|-------|---|--|
| 1 | Non-compliant modification to any of the spec parts, engine components, ECU/Electronics or modification to the chassis. | WRL, AER, SCCA, NASA, and SVRA may not permit the driver (i.e. suspend) of the non-compliant Spec MX-5 (regardless of which of these sanctioning bodies issued the suspension) to compete in their respective series for the 12 months following the suspension. Also, the sanctioning body that the Spec MX-5 competitor was non-compliant will issue a \$1,000 fine. |
| 2 | Non-compliant modification to the suspension or drivetrain outside of | WRL, AER, SCCA, NASA, and SVRA may not permit (i.e. suspend) the driver of the non-compliant Spec MX-5 (regardless of which of these |

| | | |
|---|--|--|
| | level one infractions: engine, fuel system, charging system, exhaust, and intake system. | sanctioning bodies issued the suspension) to compete in their respective series for the 6 months following the suspension. Also, the sanctioning body that the Spec MX-5 competitor was non-compliant may issue a \$500 fine. |
| 3 | Non-compliance (non-modification such as incorrect part) for any of the spec parts, engine components, ECU/Electronics or to the chassis. | WRL, AER, SCCA, NASA, ad SVRA may not permit (i.e. suspend) the driver of the non-compliant Spec MX-5 (regardless of which of these sanctioning bodies issued the suspension) to compete in their respective series for up to 12 months following the suspension. Also, the sanctioning body that the Spec MX-5 competitor was non-compliant may issue up to a \$1,000 fine. |
| 4 | Non-compliance (non-modification such as incorrect part) for any of the suspension or drivetrain outside of level one infractions: engine, fuel system, charging system, exhaust, and intake system. | WRL, AER, SCCA, NASA, ad SVRA may not permit (i.e. suspend) the driver of the non-compliant Spec MX-5 (regardless of which of these sanctioning bodies issued the suspension) to compete in their respective series for up to 6 months following the suspension. Also, the sanctioning body that the Spec MX-5 competitor was non-compliant may issue up to a \$500 fine. |

Mazda reserves the right to modify any aspect of this Vehicle Technical Specifications document at any time.