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# Camaro-Mustang Challenge Racing Series

## 2010 EDITION

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## ***Camaro Mustang Challenge***

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### Official Rules Rules Subject To Change

#### 2010 Rules and Classifications

#### **1. INTRODUCTION**

Camaro Mustang Challenge is a racing series with two classes: CMC1 and CMC2. The following rules are not guidelines for this series but an actual listing of allowed and required modifications. All of these rules apply to both CMC1 and CMC2 cars unless otherwise stated. The only modifications are those specifically allowed. If not specifically allowed, any modifications shall be prohibited. Some equipment may be required to support the sponsors who have contributed to the year end points fund.

#### **2. INTENT**

The intent of the *Camaro Mustang Challenge* (CMC) racing series is to provide *National Auto Sport Association* (NASA) members a racing series featuring production V8 pony cars. Modifications will be limited to those necessary to promote safety, close competition, and flexibility to enable drivers to learn and experiment with the principles of race car setup within boundaries intended to limit expenses, thereby providing the drivers with fun, exciting, and challenging yet approachable racing.

Good sportsmanship is valued more than finishing position. This means clean, well-executed passing is to be a trademark of the series. Punting another competitor, or leaning on them to gain a position will not be tolerated. Car to car contact including bump drafting can result in an investigation and possible sanctions.

#### **3. GOVERNANCE and PROCEDURES**

##### **3.1 Selection**

To support and promote the intent of CMC a formal CMC Board of Directors will be selected. The Board shall consist of a Chief Director and other directors to cover the various NASA regions. If for any reason a director resigns their position, the Chief Director shall appoint a replacement director. If for any reason the Chief Director resigns the full board shall select a replacement Chief Director.

##### **3.2 Procedures/Goals**

The CMC Series will be supported and sanctioned by the National Auto Sport Association (NASA). All race events will be governed by the rules set forth by the CMC Directors and NASA officials. All competitors agree to also abide by the rules set forth in the NASA's current Club Codes and Regulations (NASA CCR) and any supplemental rules issued by the CMC Directors. The CMC Directors have nationwide authority, over all regions, and all matters pertaining to CMC. The Chief Director is given the main guiding control and final decision making power for CMC. The NASA Executive Director will maintain oversight of the series as required by the NASA CCR.

The CMC Directors may appoint one or more Regional Coordinators to manage day to day CMC activities in the different NASA regions. Day to day CMC activities include determining event procedures as necessary, enforcing CMC rules, and forming Incident Review Boards to assist in determining infractions and driver penalties.

All requests for clarifications or interpretations of rules shall be made via email to a Director. The Directors will return official clarifications to the competitor via email. Rules clarifications will be used as the basis for re-writing rules at the end of the year, as necessary.

The Directors and Coordinators, collectively called CMC Officials, shall make all efforts to be available to help answer questions and make new CMC competitors feel welcome to the series. The CMC Official's goals are to keep CMC weekends and the series as a whole running smoothly, fulfilling the intent of the series.

### **3.3 Driver's Infractions**

The NASA CCR sections 25-27 regarding on course conduct will be followed with the following exceptions. All on course contact requires each competitor to fill out a body contact report form and submit it to the Race Director. The Race Director or the CMC Officials at an event will form an Incident Review Board, which may consist of CMC Directors, Coordinators, competitors, and NASA Officials. The IRB will review the incident, determine fault if any, and communicate this to the CMC Officials at the event, who will in turn work with the Race Director to determine penalties based on the severity of the on course infraction. Penalties will be based on the list in the NASA CCR section 27.

### **3.4 Appeals**

Any CMC competitor may appeal any decision of a CMC Official regarding technical issues and rules enforcement to the full CMC Board of Directors. Competitors must notify the CMC Officials at the event of their intent to appeal within 30 minutes of receiving the decision they wish to appeal. Appeals must then be submitted to the CMC Directors via email within 3 days of the event. The Chief Director shall inform the competitor of the Board of Director's decision. The competitor may appeal this decision using the process set forth in NASA CCR section 17.5.

If the situation must be resolved during an event weekend, all CMC Officials attending that weekend shall meet to decide on the merits of the appeal. The CMC Officials will then vote to support or overturn the decision. This decision may still be appealed to the CMC Board of Directors, via email and within 3 days of the event.

Decisions of other NASA officials relating to on-course conduct or technical rulings may be appealed using the process set forth in NASA CCR section 17.5.

### **3.5 Non-compliance/Cheating**

Cheating and non-compliance will not be welcome and will receive harsh penalties. Non-compliance, defined as unintentional violation of CMC or NASA technical specifications will result in a disqualification. Cheating, defined as intentional violation of CMC or NASA technical specifications will result in multiple race disqualifications. The CMC Officials may decrease or increase penalties up to permanent ejection from the series for non-compliance or cheating based on the severity and recurrence of offenses.

### **3.6 Non-conforming Equipment**

Any equipment that does not conform to the rules must have prior approval by the CMC Board of Directors. For consideration, approval must be made, in writing, 30 days prior to the date of competition. It is the intention of this class not to allow any modifications that would increase the cost of competition.

### **3.7 New Drivers/New Model Cars**

The CMC Chief Director may allow a new competitor or competitor in a new model car to enter as a "Fun Run" with a car not in complete compliance with CMC Rules. Competitors with non-compliant cars may not collect points.

### **3.8 Weighing procedures**

All weight measurements must be done with CMC approved weight scales or with specific approval from a series official.

### **3.9 Dynamometer Certification**

All participants who wish to compile season points must have a dynamometer certification report prior to the start of the race or make arrangements to have a dyno test performed immediately after the race. The dynamometer certification report will consist of two parts: a completed CMC Dyno Spec Sheet and Dyno Sheet Readout Graphs. These forms must be kept with the vehicle's logbook and be ready to present to any official. The CMC Dyno Spec Sheet includes instructions for performing the official dynamometer inspection, which must be followed in order for the dyno report to be valid. The Dyno Spec Sheet is available on the CMC website.

### **3.10 Inspection and Testing**

NASA tech inspectors and CMC Officials have the right to inspect anything in sight at any time the vehicle is at the track. NASA tech inspectors and CMC Officials have the right to request disassembly or any other procedure required to verify vehicle compliance with these rules including a dynamometer re-certification. The CMC Official may require that a CMC Official or designee be present for any dynamometer re-certification.

### **3.11 Tolerances**

Unless otherwise specified, all published measurements infer a tolerance of + / - one-half of the last specified decimal place. All rounding will be done to the nearest decimal place that is specified in these rules. In a case where a measurement falls exactly on the halfway mark it shall be rounded up or down in favor of the competitor.

**3.11.1** Fuel Pressure Tolerance shall be +/- 2psi for EFI cars and +/- ½ psi for carbureted cars.

**3.11.2** Timing tolerance shall be +/- 1 degree.

### **3.12 Proof of Legality**

It is the responsibility of the competitor to provide proof of legality of their vehicle's modifications or components to CMC Officials.

## **4. SAFETY**

### **4.1 Safety Requirements**

All cars and drivers must conform to NASA's *Club Codes and Regulations (CCR)*.

### **4.2 Class Safety**

The Event Director or any CMC Official may exclude any car for any item that is deemed to be unsafe.

### **4.3 Steering Wheel Lock**

The steering wheel lock must be removed.

### **4.4 Air Bags**

Air bags must be disabled while under competition conditions. The air bag need not be removed.

### **4.5 Sunroofs/Moonroofs**

Sunroofs/moonroofs (glass) must be removed and replaced with a sheet metal piece securely covering the opening. A metal sunroof/moonroof may be retained.

### **4.6 Drive Shaft/Torque Arm Safety Loops**

All cars must use a suitable drive shaft safety loop to contain the front/transmission end of the drive shaft and torque arm if applicable in the event of a universal joint or torque arm mount failure. Some cars have OEM chassis bracing that meets this requirement. The installation of additional safety loops to contain the rear/differential end of the drive shaft and/or torque arm is not required but is allowed and recommended.

**4.7 Scattershield**

The installation of a scattershield or explosion-proof bell housing is not required but is allowed and recommended.

**4.8 Master Switch**

An electrical master switch is required. The installation of the electrical master switch must meet the requirements listed in section 15.8 of the CCR.

**4.9 Fuel Safety Cell**

The installation of a fuel safety cell meeting CCR requirements is not required but is allowed and strongly recommended. The fuel cell maximum size is limited to 24 gallons. S197 chassis Mustangs may replace the OEM mid chassis mounted fuel tank with a fuel cell mounted in the rear trunk area between the frame rails in the manner prescribed by the CCR.

**4.10 Fire Extinguisher/Fire System**

All cars must have at minimum a fire extinguisher meeting CCR requirements. The installation of an on board fire system meeting the CCR requirements is not required but is strongly recommended.

**4.11 Convertible/T-top Cars**

Convertible/T-top cars in the eligible models and years are allowed. Convertible/T-top cars must have an additional support bar in the roof of the roll cage running either running from front to back located in the centerline of the car, or diagonally from the front driver side to rear passenger side. Convertible/T-top cars must use driver arm restraints as required by the CCR. Convertible cars must run with the top down during competition and provide suitable means of securing the top in the event of a rollover, or may remove the top and operating mechanism. T-top cars must remove the T-tops during competition unless permanently fixed panels have been installed. All OEM structural additions for convertible/T-top cars must remain in place. Hard top cars may not be made into convertible or T-top cars.

**4.12 Door Safety Bars**

In addition to meeting all of the CCR specifications the roll cage in a CMC car must meet the following additional specifications. At a minimum at least two door safety bars must be used on the drivers side, and one door safety bar on the passenger side. Gutting of the door beyond what is solely necessary to fit cage bars is allowed. However, removal of the OEM door impact beams is only allowed if door bars extend out towards the door skin on the driver's side, and on the passenger side if a minimum of two door bars are used.

**4.13 Driver Comfort**

Driver comfort items such as cool suits, windshield defogger blowers etc. are allowed as long as they have no impact on vehicle performance.

**5. ELIGIBLE MANUFACTURERS/MODELS****Manufacturers:****Ford Motor Company (Early Ford)**

*Eligible Early Ford makes and models:*

1979-95 Ford Mustang 5.0 V8 including 1993-1995 Cobra (1993 and 1995 Cobra R models excluded)

1979-86 Mercury Capri 5.0 V8

1996-2004 Ford Mustang 4.6 SOHC V8

1996-04 Ford Mustang 4.6 DOHC N/A V8\*(2000 Cobra R and 2003-2004 Cobra models excluded; 4.6 DOHC may run CMC2 only)

\* IRS cars must replace the IRS with standard Mustang live axle

**Ford Motor Company (Late Ford)**

*Eligible Late Ford makes and models:*  
 2005+ Ford Mustang GT (CMC2 only)

**General Motors (Early GM)**

*Eligible Early GM makes and models:*  
 1982-92 Chevrolet Camaro (all submodels with V8 motors eg – RS, Z28 etc; 5.7L may run CMC2 only)  
 1982-92 Pontiac Firebird (all submodels with V8 motors eg Formula, Trans-Am, WS6 etc; 5.7L may run CMC2 only)

**General Motors (Late GM)**

*Eligible Late GM makes and models with 5.7L V8 motors*  
 1993-02 Chevrolet Camaro LT-1 or LS-1 (LS-1 may run CMC2 only)  
 1993-02 Pontiac (all F-Body models with LT-1 or LS-1; LS-1 may run CMC2 only)

**6. CLASSIFICATION**

**6.1 Classification**

Vehicles competing in the CMC series must declare their participation in one of the two CMC series classes, CMC1 or CMC2, and comply with the tables below. Points and any eligible prizes will be awarded separately for these two classes.

Chasis/Body		Engine	CMC1	CMC2
<b>Ford</b>				
Early Ford through 1993	5.0		Table # 1	Table # 2
Early Ford 1994-2004	5.0 and 2V 4.6		Table # 1	Table # 2
Early Ford 1994-2004	DOHC 4.6		Not Eligible	Table # 2
Late Ford 2005+	All from Late Ford Eligible Models list		Not Eligible	Table # 2
<b>GM</b>				
Early GM through 1992	5.0 TPI		Table # 1	Table # 2
Early GM through 1992	5.0 Carbureted		Table # 1	Table # 2
Early GM through 1992	5.7 Carbureted		Not Eligible	Table # 2
Early GM through 1992	LT-1		Not Eligible	Table # 2
Late GM 1993+	LT-1		Table # 1	Table # 2
Late GM 1993+	LS-1		Not Eligible	Table # 2

<b>Power &amp; Weight Table # 1</b>									
Ford vehicles through 1993 subtract 100lbs from weights below									
Ford vehicles 1994-2004 subtract 50lbs from weights below									
		Torque							
		≤300	301	302	303	304	305	306	307
Horsepower	≤230	3200	3210	3220	3230	3240	3250	3275	3300
	231	3210	3220	3230	3240	3250	3260	3285	3310
	232	3220	3230	3240	3250	3260	3270	3295	3320
	233	3230	3240	3250	3260	3270	3280	3305	3330
	234	3240	3250	3260	3270	3280	3290	3315	3340
	235	3250	3260	3270	3280	3290	3300	3325	3350
	236	3275	3285	3295	3305	3315	3325	3350	3375
	237	3300	3310	3320	3330	3340	3350	3375	3400

<b>Power &amp; Weight Table # 2</b>									
<b>Ford vehicles through 1993 subtract 100lbs from weights below</b>									
<b>Ford vehicles 1994- 1998 subtract 50lbs from weights below</b>									
<b>Ford vehicles 1999- 2004 using cast iron 4.6 blocks subtract 50lbs from weights below</b>									
<b>Ford vehicles 2005 and up and LS1 vehicles add 50lbs to weights below</b>									
		<b>Torque</b>							
		<b>≤310</b>	<b>311</b>	<b>312</b>	<b>313</b>	<b>314</b>	<b>315</b>	<b>316</b>	<b>317</b>
<b>Horsepower</b>	<b>≤260</b>	3200	3210	3220	3230	3240	3250	3275	3300
	<b>261</b>	3210	3220	3230	3240	3250	3260	3285	3310
	<b>262</b>	3220	3230	3240	3250	3260	3270	3295	3320
	<b>263</b>	3230	3240	3250	3260	3270	3280	3305	3330
	<b>264</b>	3240	3250	3260	3270	3280	3290	3315	3340
	<b>265</b>	3250	3260	3270	3280	3290	3300	3325	3350
	<b>266</b>	3275	3285	3295	3305	3315	3325	3350	3375
	<b>267</b>	3300	3310	3320	3330	3340	3350	3375	3400

## 6.2 Horsepower/Torque and Minimum Weight

Horsepower and torque used to determine minimum weight must be the average of the three dyno runs, as recorded on the car's annual Dyno Spec Sheet. All cars must display this horsepower, torque, and minimum weight on a CMC power/weight decal on the windshield. Minimum weight is as measured immediately after a race, including driver.

## 7. CMC1 CLASS MODIFICATIONS

### 7.1 Allowed Modifications

Other than those items specifically allowed by the rules, no other part or component may be modified, removed, or disabled. If there are any "questionable" or "gray" area modifications, the competitor shall contact the CMC Board of Directors for clarification before competition.

Replacement parts must be *original equipment manufacturer (OEM)* or others of equivalent OEM specifications. (i.e. – OEM replacement parts from any retailer are allowed provided they meet OEM specifications and do not offer a performance improvement over the OEM part they replace.)

Limited production components and/or prototypes must be approved by a Director prior to competition to ensure their use and lack of availability to all competitors will not result in a competitive advantage.

### 7.2 Appearance Requirements

**7.2.1** All cars are required to prominently display at least four official NASA racing stickers, one on the front, rear, and one on each side.

**7.2.1.2** Series sponsor or individual race sponsor decals or stickers may be required. Drivers must also display any series required patches and NASA patches on their driving suits.

**7.2.2** All windshields shall have a Camaro Mustang Challenge banner across the top. The driver's last name, or first initial and last name, must be displayed on the lower passenger side section of the windshield in tall, bold, white block letters. The CMC class number (1 or 2) must be displayed on the windshield, centered below the banner and centered along the top edge on the rear glass in white block font.

**7.2.3** The vehicle must exhibit its assigned car number on both sides, front and rear of the car. The side numbers must be at least ten (10) inches tall and be of a contrasting color. The front and rear numbers must be at least four (4) inches tall. Class identification must be at least five (5) inches tall and be located in close proximity to the number on each side of the car .

**7.2.4** No tinted windows allowed other than factory OEM tints.

### 7.3 Update/Backdate Non-body Components

Non-body components may be updated/backdated within cars of the same manufacturer on the eligible manufacturers/models list (i.e. 1982-92 GM Early components may **NOT** be interchanged with 1993-97 GM Late components) unless noted elsewhere in these rules.

#### **7.4 Update/Backdate Body Components**

OEM body components, unit body, and subframes may be updated/backdated only within the years, make and model groups as follows:

1. 1982-92 Chevrolet Camaro (all OEM submodels eg – RS, Z28, IROC)
2. 1993-2002 Chevrolet Camaro (all OEM submodels eg – RS, Z28, SS)
3. 1979-93 Ford Mustang (all OEM submodels eg – LX, GT)
4. 1994-98 Ford Mustang (all OEM submodels eg – LX, GT)
5. 1999-2004 Ford Mustang (all OEM submodels eg – LX, GT)
6. 1979-86 Mercury Capri
7. 1982-92 Pontiac Firebird (all OEM submodels eg Formula, Trans-Am, WS6,)
8. 1993-2002 Pontiac Firebird (all OEM submodels eg Formula, Trans-Am, WS6,)

#### **7.5 Body**

**7.5.1** Fenders / quarter panels must be OEM stock or an OEM replacement meeting the following requirements:

1. The lips may be rolled inward for tire clearance and may not be flared outwards.
2. Panels may not otherwise be modified / altered / or installed in such a way as to purposely increase width or possible track width over OEM dimensions.
3. A vertical line from the widest point of the fender lip may not intersect the tire contact patch/tread area above the centerline of the wheel when the wheels are straight.
4. Plastic interior wheel opening panels may be removed.

**7.5.2** A front air dam may be used provided it meets the following requirements:

1. Air dams must fit securely to the body with minimum modifications to the original bumper cover.
2. Air dams must only extend downward from the original bumper cover, with no horizontal sections, and may not protrude beyond the overall outline of the body when viewed from above.
3. Early Ford (pre-2005) may use the following aftermarket front air dams which were available from the OEM: Saleen or Roush (Mustang only)

**7.5.3** The slotting, cutting, or drilling of the front bumper cover and underlying bumper structure to provide additional cooling air to the radiator, brakes, or coolers is allowed provided that:

1. No more than 120 square inches of material is removed from the bumper cover
2. No more than 30" total width of material, measured horizontally, is removed from the underlying bumper structure. In no case may a one piece bumper structure be cut into two pieces.

**7.5.4** Only spoilers or wings that were OEM equipment on an eligible model may be used other than the following exceptions:

1. Early Ford (pre-2005) cars may use Roush, Saleen, or Steeda wings that were available on factory models through the dealer.
2. Early GM (pre-1993) Pontiacs may use Mecham Trans Am wings that were available on factory models through the dealer
3. Any car may add a spoiler of any design/origin to the OEM trunk/rear lid/eligible model wing as long as a vertical line from every point on the added spoiler intersects the body/bumper below it and the maximum height of the added spoiler, measured vertically from any attachment point, is no more than 6 inches.

**7.5.5** No body component with the exception of the radiator air deflector shall be lower than 4" measured vertically from the ground. Radiator air deflectors shall be no lower than 2 inches measured vertically from the ground.

**7.5.6** Hood pins must be fitted. Trunk pins may be fitted. Stock hood and trunk latches may be replaced with clips. The car must be run with the hood, doors, and trunk completely closed and securely latched.

**7.5.7** Windshield clips as described in 15.13 of the CCR are optional but strongly recommended. Rear window clips are optional but strongly recommended.

**7.5.8** All chassis and structure repair must be done as close as possible to the OEM factory specifications. Besides what is allowed by these rules, no additional chassis/frame strengthening is allowed. All body repairs must maintain OEM stock contours.

**7.5.9** A section of the floor may be cut and a trap door added in order to enable changing the in-tank fuel pump without removing the tank.

## **7.6 Chassis Strengthening**

**7.6.1** The frame or subframe shall be stock for the body used. The front and rear subframes may be tied together (front to rear only) with subframe connectors. The subframe connectors may be bolted or welded to the unmodified subframes, but may not be welded or bolted to the floor along the length of the subframe connector. The subframe connectors may not pass through the floor or intrude into the inside of the car. OEM seat mount points may be altered or reinforced. The reinforcement may tie into the subframe connectors or the cage but may not span across the floor from driver to passenger side.

**7.6.2** One bolt in stay rod may be fitted between the upper front strut towers and between each strut tower and the firewall, as long as the firewall attachment point is not within 18" of a roll cage attachment point on the other side of the firewall.

**7.6.3** A lower chassis front suspension brace (G-load brace) may be fitted. It must bolt on only using a maximum of four existing OEM factory holes or mounting bolts and no cutting, welding or other modifications may be made to the structure of the car to install this brace.

**7.6.4** A front steering brace may be fitted. It must bolt on only using a maximum of four existing OEM factory holes and no cutting, welding or other modifications may be made to the structure of the car to install this brace.

## **7.7 Ballast**

Up to 150lbs of ballast is allowed, but no further rearward than the plane of the front of the main hoop of the roll cage. Each ballast piece may not be taller than three inches or stacked higher than three inches. Ballast must be securely fastened and approved by NASA tech/safety officials.

## **7.8 Interior**

**7.8.1** The driver's seat must be replaced with a seat suitable for competition. The driver's seatback must be reinforced by bracing the seat back to the roll cage unless it conforms to the FIA standard which does not require a seat brace. A head restraint system meeting the CCR requirements must be used to cushion the driver's head from behind.

**7.8.2** Any steering wheel may be used other than wooden models. Quick release mechanisms and spacers may be used to move the steering wheel location, but the OEM steering column must be used.

**7.8.3** Any shift knob may be used.

**7.8.4** Modifications may be made to the foot pedals to improve the comfort and control accessibility for the driver.

**7.8.5** Gauges may be replaced or added.

**7.8.6** Any interior or exterior mirrors may be used.

**7.8.7** The OEM stock dashboard must remain intact except to accommodate the installation of the roll cage.

**7.8.8** Other than the stock dash, all other interior parts and panels, including all passenger seats may be removed. Undercoating may be removed. Floor mats, spare tire, tools, jacks, etc. must be removed. There must be no remaining sharp edges that could come in contact with the driver. 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.

**7.8.9** Any unused interior brackets may be removed. There must be no remaining sharp edges.

**7.8.10** Any unused under-hood brackets and plastic components that can be unbolted (not cut) may be removed.

## **7.9. Electronics/Electrical**

**7.9.1** Removal of wiring associated with a component that may be removed by these rules is permitted. Re-wiring of legal components is allowed as long as the modifications to the wiring do not alter or affect the original performance of the connected components.

**7.9.2** All cars must have a minimum of two properly functioning OEM rear brake light assemblies. All other OEM light assemblies may be replaced with facsimiles, plates, covers, or mesh covered cooling duct openings as long as these maintain the stock external appearance. Replacements for recessed lights must also be recessed. Front Turn signals and fog lights may be removed.

**7.9.3** Electronic traction control devices are expressly prohibited. OEM electronic traction control devices must be removed or disabled.

**7.9.4** Windshield wipers, wiper motor, arms, parts, windshield washer pump, washer reservoir, all lines and wiring may be removed.

**7.9.5** Data Acquisition Systems are unrestricted. Telemetry is not allowed.

**7.9.6** Radio Communication devices are allowed.

**7.9.7** The battery may be relocated. The battery must be of the same type, group size (i.e. 24F), and voltage as originally equipped, or heavier, and may not be modified.

**7.9.8** The alternator must be OEM stock and may be updated/backdated within cars of the same manufacturer on the eligible manufacturers/models list. The alternator must be charging according to the manufacturer's specifications.

## **7.10 Plumbing**

Plumbing, defined as hoses, hose ends, hard lines, associated fittings, and routing, is unrestricted provided it serves the same function. Filters for all fluids may be added or substituted.

## **7.11 Engine**

**7.11.1** Any 4.6 2V Ford, 5.0, (302 Ford or 305 GM), 5.7 liter LT1 GM V8 production engine, in OEM stock configuration unless otherwise stated in these rules, that was originally offered in an eligible model car is legal. Cobra R model engines (Ford) and LT4 (GM/Chevrolet) engines or engine components are prohibited.

**7.11.2** Engine mounts may be substituted with aftermarket polyurethane or solid replacements that use the OEM mount locations and maintain the motor in the OEM location.

**7.11.3** Aftermarket harmonic balancers meeting SFI 18-1 and factory balance are allowed.

**7.11.4** GM vehicles may substitute engine blocks with OEM cast iron four bolt main bearing blocks.

## **7.12 Ford Spec Carbureted Engine Option**

All of the following unmodified aftermarket components (and only these components) may be substituted on a CMC legal Ford 5.0 liter (302ci) V8 long block to create a carbed, spec Ford engine:

1. Holley carburetor 600cfm-4bbl #4776
2. Edelbrock Performer intake manifold #2121
3. Ford OEM distributor (non-computer controlled)

## **7.13 GM Spec Carbureted Engine Option**

All of the following unmodified aftermarket components (and only these components) may be substituted on a CMC legal GM/Chevrolet 5.0 liter (305ci) V8 long block to create a carbed, spec engine:

1. Holley carburetor 600cfm-4bbl #4776
2. Edelbrock Performer intake manifold #2101 or #2104
3. Edelbrock Performer Cam kit #2102
4. GM OEM H.E.I. distributor (non-computer controlled)

## **7.14 Engine Balancing / Rebuilding**

Engine balancing is allowed. Lightening of parts beyond the minimum required to balance is prohibited. Boring/honing is allowed up to 0.060 over. Head/block milling is allowed but only as far as required to

square/clean the surface area. Compression ratio shall be no higher than 10.0 to 1 for iron head engines and 11.0 to 1 for aluminum head engines.

### **7.15 Fasteners/Gaskets/Engine Bearings**

Fasteners are unrestricted provided they serve the same function. Gaskets and engine bearings are unrestricted.

### **7.16 Lubrication**

Oil Filters and lines may be replaced or added. Dry sump lubrication systems are prohibited. Any oil pump that fits in the OEM location is allowed.

#### **7.16.1 Pressure accumulators/aftermarket oil pans**

Eligible cars may have one or both of the following devices installed:

1. Oil pressure accumulator:

An oil pressure accumulator such as an Canton Accusump or Moroso accumulator is allowed. Any oil lines that pass through the passenger compartment must be metal or metal braided and must be securely fastened and safely routed as per the NASA CCR.

2. Aftermarket oil pan and pickup:

Non-OEM oil pans are allowed, but restricted only to the following manufacturers and model numbers listed below.

1979 - 1995 Ford 5.0L Canton P/N 15-644

1982 - 1992 GM 5.0L Canton P/N 15-244T (1pc or 2pc block)

1993 - 1997 GM 5.7L Canton P/N 15-242T

1996 - and up Ford 4.6L Canton P/N 15-784

### **7.17 Catch Tanks**

All engine breathers and coolant overflow lines must vent to a catch tank of at least one U.S. quart capacity. Catch tanks may not be mounted in the passenger compartment. An engine vacuum breather that passes through the catch tank to the exhaust system or vacuum devices that connect directly to the exhaust system are prohibited.

### **7.19 Accessory Pulleys/Belts**

All engine accessories must remain OEM stock. Engine accessory mounting may be modified from stock to allow removal of the air conditioning compressor and smog pump. Engine accessory drive pulleys and belts may be replaced with any non-tooth drive belt and appropriate pulleys providing doing so does not boost horsepower or torque above the allowed maximum figures.

### **7.20 Smog Equipment**

All smog equipment may be removed, including the catalytic converter(s). Any smog equipment not removed must either be disabled or left to function as originally intended by the manufacturer. All disconnected ports and holes must be sealed.

### **7.21 Injection/Induction**

**7.21.1** The jets, metering rods, needles, etc in the stock / spec carburetor may be changed to facilitate tuning.

**7.21.2** The stock/spec carburetor choke assembly may be removed. Any carburetor heat shield/insulator/spacer up to 1" thick may be installed on carburetor cars to help prevent fuel boiling.

**7.21.3** Injectors may be of any origin, but must have the same OEM rating and use the OEM fuel rail.

**7.21.4** Cars may install a restrictor between the air filter and intake manifold to reduce horsepower and torque. The diameter and thickness of the restrictor plate orifice(s) shall be noted on the Dyno Sheet and must match at all times.

**7.21.5** Any commercially available air filter or air filter assembly may be fitted and modified. Air boxes and filters must reside inside the engine compartment or in the OEM stock location. Air filter installations intentionally designed to create a ram air effect are not allowed, even if they were OEM stock.

## **7.22 Fuel System**

**7.22.1** A maximum of one fuel pump and one pickup are allowed with the following restrictions:

1. Cars retaining the stock fuel tank may use any fuel pump that fits in the factory location.
2. Cars equipped with a fuel cell may use any fuel pump and mount it anywhere outside of the passenger compartment.

**7.22.2** Fuel pressure may be adjusted by means of an adjustable fuel pressure regulator. Only one pressure regulator per car is allowed. For fuel-injected cars, the regulator must fit in the factory OEM location. It must be possible to test the fuel pressure using the factory fuel pressure test port.

**7.22.3** Fuel coolers of any kind are prohibited.

## **7.23. Ignition**

**7.23.1** Any spark plugs and ignition wires may be used.

**7.23.2** Any rev limiter may be used provided that is its only function.

**7.23.3** Any initial timing may be used but no recurving of the distributor or timing map is permitted

**7.23.4** All other ignition components and parts must be OEM stock or equivalent replacements and remain unaltered.

## **7.24 Exhaust**

All cars must use OEM stock exhaust manifolds. Any suitable exhaust system may be used after the OEM stock exhaust manifolds. The exhaust must exit behind the driver and be directed away from the car. Mufflers may be required to meet sound regulations depending on track location.

## **7.25 Engine Cooling**

**7.25.1** Any radiator may be used provided it fits in the stock location and requires no major body or structure modifications to install.

**7.25.2** Any engine driven water pump that fits in the unmodified OEM location is allowed.

**7.25.3** Radiator fans may be removed or added. Thermostats are unrestricted. Air conditioning systems may be removed.

**7.25.4** The heater core may be bypassed and/or the entire heater box assembly may be removed. This includes all hoses, lines, ducts, coils, and controls. Any resulting holes in the firewall must be plugged or covered adequately to maintain the integrity of the firewall. Tape is not an acceptable covering.

**7.25.5** Oil and power steering coolers may be replaced or added. Coolers must be securely mounted forward of the firewall. All lines must be securely fastened and safely routed.

**7.25.6** Late GM vehicles (1993+) may use modified power steering pumps to lower power steering temperatures.

**7.25.7** The only engine coolant allowed shall be water. Water additives such as Redline Water Wetter may be used.

## **7.26 Clutch/Flywheel**

Any single disc clutch and steel pressure plate of OEM stock diameter may be used provided that it is bolted directly to the unmodified OEM stock flywheel.

## **7.27 Transmission**

**7.27.1.** Any OEM stock four, five or six speed transmission that was originally offered in an eligible model car of the same manufacturer is allowed. Tremec 3550 (Tremec part 260 0682R or TCET1376 only), and Tremec TKO transmissions are also allowed.

**7.27.2.** No transmission modifications are allowed other than the changing of gear ratios.

**7.27.3.** Any shifter or shift linkage may be used.

**7.27.4.** Transmission mounts and/or bushings may be changed from stock

**7.27.5.** No automatic or semi-automatic transmissions are allowed. Cars originally equipped with an automatic transmission must convert to a legal manual transmission.

### **7.28 Drive Shaft**

The OEM stock drive shaft, yokes, and universal joints may be substituted with any replacement of steel or aluminum construction.

### **7.29 Rear axles**

**7.29.1** Any OEM stock differential housing that was originally offered in an eligible model car is allowed. Updating/Backdating of OEM stock differential housings is allowed.

**7.29.2** Both GM and Ford cars may also use a Ford 9", GM 12 bolt, or Dana 44 rear axle housing, but the housing must maintain both the exact OEM suspension pickup points and OEM rear end geometry as the originally equipped axle assembly.

**7.29.3** Any gear ratio that fits the stock/alternate differential case without modification may be used. Differentials may be fully locked (welded) or use any commercially available mechanical limited slip.

**7.29.4** Any commercially available replacement type steel or alloy steel axles may be used. Full floater axles are prohibited. Heavy-duty non-"C" Clip style axle ends are allowed and recommended. Competitors should carefully select axle ends. Many of the "C" clip eliminator axle ends are designed for street or drag strip use only and cannot withstand the side loads associated with road racing.

### **7.30 Wheel Studs**

Wheel studs and lug nuts are unrestricted, but must be made of steel and no smaller in size than OEM stock.

### **7.31 Wheels/Tires**

**7.31.1** Wheels may be of any construction or material but must weigh more than 16 pounds.

**7.31.2** Maximum wheel size is 16"x8".

**7.31.3** Maximum tire size is 255/50R16. The only tire brand and model allowed is the Toyo Proxes RA1.

**7.31.4** Wheel spacers are allowed and wheels may have any offset.

### **7.32 Brakes**

**7.32.1** Brake pads, linings, and fluid are unrestricted.

**7.32.2** The brake master cylinder and brake booster must be OEM stock and unmodified. Any year SVO Mustang master cylinders/boosters are allowed for Early Ford vehicles.

**7.32.3** A brake-proportioning valve may be used provided that it is an inline, pressure-limiting type.

**7.32.4** Backing plates may be removed or modified. Air ducts may be fitted to the brakes, provided that they extend in a forward direction only and that no changes are made in the body/structure for their use. Liquid brake cooling is prohibited.

**7.32.5** Parking brakes, mechanisms, and actuating components may be removed.

**7.32.6** Rear caliper mounting brackets may be substituted.

**7.32.7** Antilock braking systems (ABS) are prohibited. OEM stock ABS systems must be removed or disabled

**7.32.8** Braking systems shall conform to the following specifications:

1. The one piece front or rear hub with rotor may be replaced with a separate hub and rotor or separate hub, rotor hat and rotor.
2. Rotors shall be cast iron only and may be vented. No cross drilling or slotting is allowed.
3. The maximum front and rear rotor size shall not exceed the following dimensions:
  - a. All GM vehicles: 12.0" diameter and 1.25" thickness
  - b. All Ford vehicles: 12" diameter and 1.125 thickness
4. Front calipers may be updated/backdated within cars of the same manufacturer on the eligible manufacturers/models list with the following exceptions listed below:
  - a. All GM vehicles may use stock 98+ Camaro/Firebird 44mm dual piston calipers or C5/C6 40mm dual piston calipers
  - b. Early Ford vehicles may use stock SVO calipers.
5. The rear calipers may be updated/backdated within cars of the same manufacturer on the eligible manufacturers/models list with the additions listed below for Ford cars being allowed:
  - a. Unmodified 1984-1986 Mustang SVO rear caliper

- b. Unmodified 1984-1987 Lincoln Mark 7 rear caliper
- c. Unmodified PBR style 40mm single piston calipers used in Baer and Ford kits

### **7.33 Suspension/Steering**

**7.33.1** Minimum ride height is 4.5", to be measured at the lowest point of the rocker panel, but not to include welded seams, floor pan "bumps", or fasteners.

**7.33.2** Panhard bars:

1. Ford vehicles may add a panhard bar. The bar may be adjustable for length. One panhard bar mounting point may be height adjustable to allow for leveling of the bar, but the other mounting point must be of fixed height.
2. GM vehicles may substitute the OEM panhard bar. The bar may be adjustable for length. The passenger side mounting point must remain OEM stock. The driver side mounting point may be lowered, but only to the point where the panhard bar is parallel to the axle at ride height.

**7.33.3** The OEM stock rear lower control arms only may be replaced with "replacement type" aftermarket control arms. Any aftermarket control arms used must be of fixed OEM length, or adjusted to OEM length and have jam nuts tack welded or otherwise fixed to maintain the exact suspension geometry of the OEM control arms they replace. Any spring perch must be of fixed height. The control arms must bolt on using the OEM factory holes and no cutting, welding or other modifications may be made to the structure of the car or rear end housing to install these control arms.

**7.33.4** Springs of any rate, OD, ID and free length may be used. Springs must install in the OEM stock unmodified location using the original system of attachment unless noted elsewhere in these rules.

**7.33.4.1** Late model GM cars may use a threaded collar and adjustable spring seat assembly such as one available from Ground Control, Global West and Suspension Specialists for the front suspension. The rear springs shall conform to 7.33.4 above.

**7.33.5** Any spring spacers/shims may be used. The spacers may NOT allow adjustment of the installed height of the spring without spring removal. The spring spacers/shims must install with the spring in the OEM stock location and no cutting, welding or other modifications may be made to the structure of the car to install these spacers/shims.

**7.33.5.1** If a threaded collar and adjustable spring seat assembly installed as described in 7.33.4.1 above, the distance between the bottom of the threaded collar around the shock to the bottom of the spring seat must be the same on both front assemblies at all times within a 1/8" tolerance. Spring spacers/shims may be used. The spacers may NOT allow adjustment of the installed height of the spring without spring removal. The rear suspension shall conform to 7.33.5

**7.33.6** Any non-remote reservoir shock absorbers, of any origin, that are readily available to the public from a retail source for less than \$800 a pair may be used provided they attach to the OEM stock unmodified mounting points and do not alter the stock geometry, with the exceptions outlined in 7.33.8 below.

**7.33.7** Suspension bushing material is unrestricted.

**7.33.8** All cars may adjust the camber and caster of the front wheels by the use of eccentric bushing at the control arm pivot points, by the use of eccentric bushings at the strut-to-bearing-carrier joint and/or by the use of slotted adjusting plates at the top mounting point. If slotted plates are used, they shall be located on the existing chassis structure and shall not serve as reinforcement for that structure. Some minor trimming of the chassis strut tower opening is allowed to provide for additional suspension adjustment. In lieu of caster / camber plates, late model GM cars may elongate the upper and lower control arm slots for purposes of increasing the caster and camber range.

**7.33.9** Front caster and camber on all cars is open.

**7.33.10** Maximum rear camber on all cars is 0.6 degrees negative.

**7.33.11** Alternate outer steering tie rod ends that allow adjustment for bumpsteer may be installed as long as their installation does not require any welding, or cutting to the spindle or inner tie rod ends. Drilling the steering arm to accept an aftermarket bumpsteer kit is allowed, but no other modifications to the spindle are permitted.

**7.33.12** Aftermarket steering shafts or shaft components, defined as the components connecting the steering rack/box to the steering column, may be used.

**7.33.13** The sway bar(s) may be removed or any OEM factory sway bar(s) may be updated/backdated within the years, make and model groups as follows:

1. 1982-92 GM Camaro and Firebird (all submodels eq – RS, Z28, IROC, including 1LE)
2. 1993-2002 GM Camaro and Firebird (all submodels eq – RS, Z28, SS etc)
3. 1979-2004 Ford Mustang (including Cobra and Saleen models)

**7.33.14** Sway bar end links may be any length but must use OEM style ends

### **7.34 Torque Box Repair**

All cars are allowed to repair or reconstruct the rear lower control arm body attachment points within the following restrictions:

1. The attachment point must remain in the OEM Stock location and maintain the same geometry.
2. All additional reinforcement material or welding of existing material must be within 12" of the centerline of the mounting point hole.
3. None of the additional reinforcement may penetrate the floorpan or enter the interior of the car.
4. None of the additional reinforcement may attach directly to the rollcage or rollcage mounting points

Ford cars are additionally allowed to completely weld the rear upper control arm body attachment points within the following restrictions:

1. The attachment point must remain in the OEM Stock location and maintain the same geometry.
2. All welding of the existing material must be within 10" of the centerline of the mounting point hole.

## **8. CMC2 ALLOWED MODIFICATIONS**

### **8.1 CMC2 Class Specific Modifications**

In addition to section 7 above, the following rules apply to CMC2 class cars.

### **8.2 Update/Backdate Body Components**

2005-2008 Ford Mustang models may update/backdate OEM body components, unit body, and subframes between those model years.

### **8.3 Fenders / Quarter Panels**

Ford vehicles up to and including 1993 may modify the OEM fenders / quarter panels (including adding aftermarket flares) and body mounts as needed in order to gain track width up to a maximum of 72.5". The resulting bodywork modifications must conform with CCR 18.1.3 and must have no other function than to gain tire clearance. Track width will be measured using two metal plates similar to the Longacre #7950 toe plates placed flush against the tire. Measurements will be taken three inches from the ground at the front and rear of the tire and averaged to calculate final track width.

### **8.4 Rear Wings**

Any non driver adjustable rear spoiler/wing that fits the following criteria may be used.

1. A vertical line from every point on the wing and end plates must intersect the vehicle body/bumper when the vehicle is on a level surface.
2. The maximum height of any point on the wing from any point on the deck lid/rear hatch may not be greater than 12 inches.
3. The overall depth (leading edge to trailing edge) including end plates may not be more than 12 inches.

4. The wing and mounts as installed must be readily available to the public from a retail source for less than \$700.

### **8.5 Engine**

**8.5.1** Any 4.6 Ford, 5.0, (302 Ford or 305 GM), 5.7 liter GM V8 production engine, in OEM stock configuration unless otherwise stated in these rules, that was originally offered in an eligible model car is legal. Cobra R model engines (Ford) and LT4 (GM/Chevrolet) engines or engine components are

prohibited. Additionally, early GM cars may run an LT-1 from the 93-97 Late GM cars as long as the stock LT-1 engine controlling electronics are maintained.

**8.5.2** Early GM 305 cars may use 1.6 ratio individual stud mounted roller rocker arms.

**8.5.3** Ford 5.0 cars may use Explorer/Mountaineer GT40P heads and intake manifolds.

**8.5.4** Ford 5.0 cars may use Ford Racing E303 camshafts.

**8.5.5** All of the following unmodified aftermarket components (and only these components) may be substituted on a CMC2 legal Ford 5.0 liter (302ci) V8 long block to create a carbureted, spec CMC2 Ford engine:

1. Holley carburetor 600cfm-4bbl #4776
2. Edelbrock Performer RPM intake manifold #7121 or #7521
3. Ford Racing B303 camshaft
4. Ford OEM distributor (non-computer controlled)

**8.5.6** All of the following unmodified aftermarket components (and only these components) may be substituted on a CMC2 legal GMV8 long block to create a carbureted, spec CMC2 GM engine:

5.0 liter (305ci)

1. Holley carburetor 600cfm-4bbl #4776
2. Edelbrock Performer intake manifold #2116
3. Comp Cams camshaft #12-238-2
4. GM L31 heads #12558060
5. GM OEM H.E.I. distributor (non-computer controlled)

5.7 liter (350ci)

6. Holley carburetor 600cfm-4bbl #4776
7. Edelbrock Performer intake manifold #2116
8. GM Camshaft #24502476
9. GM L31 heads #12558060
10. GM OEM H.E.I. distributor (non-computer controlled)

**8.5.7** 1998 - 2002 GM 5.7 LS1 cars may use Canton P/N 13-270A oil pans

**8.5.8** Early GM 305 and Ford 5.0 cars may use shorty style headers. Ford 4.6 2V cars may use long tube headers.

**8.5.9** Early GM 305TPI cars may use GM L31 Vortec heads PN 12558060, and Edelbrock 3817 TPI base manifolds

## **8.6 Wheels and Tires**

Maximum wheel size is 17"x9.5" and minimum wheel weight for 17" wheels is 18lbs. Maximum tire size is 275/40R17. Spec tire is still Toyo Proxes RA1.

## **8.7 Brakes**

**8.7.1** Maximum front rotor size for all cars is 13.1" diameter and 1.31" thickness

**8.7.2** All cars may use any single line, aluminum bodied caliper with four or fewer pistons that is readily available to the public from a retail source for less than \$600 in the front. Modifications to the spindle/upright to mount an alternate caliper are allowed provided their only purpose is to mount an alternate caliper.

## **8.8 Suspension**

**8.8.1** Late model Ford (2005+) cars may use a threaded collar and adjustable spring seat assembly for the front suspension, but the distance between the bottom of the threaded collar around the shock to the bottom of the spring seat must be the same on both front assemblies at all times within a 1/8" tolerance. Spring spacers/shims may be used. The spacers may NOT allow adjustment of the installed height of the spring without spring removal.

**8.8.2** Late model Ford (2005+) cars may remove or update/backdate sway bars between those model years.

## **9. SCORING SYSTEM**

### **9.1 Race Points:**

Points shall be awarded as follows:

1 <sup>st</sup>	100 points		6 <sup>th</sup>	91 points
2 <sup>nd</sup>	97 points		7 <sup>th</sup>	90 points
3 <sup>rd</sup>	95 points		8 <sup>th</sup>	89 points
4 <sup>th</sup>	93 points		9 <sup>th</sup>	88 points
5 <sup>th</sup>	92 points		10 <sup>th</sup>	87 points

Points will continue in a descending order, subtracting one point for every position after the 10th. All cars that start the race shall be considered finishers. Points from the lowest scoring 20% of the season's total number of races shall be dropped from each driver's total for purposes of calculating the season total. Rookie points will be awarded the same, except the lowest scoring 33% of the season's total number of races shall be dropped.

Races resulting in a DQ due to a driving penalty will result in zero points but these may be dropped from the annual points total. Races resulting in DQ for all other penalties, or missed as a result of suspension will result in zero points which may not be dropped from the annual points total.

### **9.2 Qualifying Points**

The driver who is awarded the top qualifying position for each qualifying session shall be given an additional point for each pole position earned added to their season total points after applying drops.

## **10. CMC DIRECTORS/WEB PAGE**

Any questions concerning the CMC class should be directed to the CMC Board of Directors or your region's Regional Coordinator.

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Additional CMC information, including annual schedule, points race and a public message board may also be found on the CMC Web page: <http://www.camaromustangchallenge.com/>