# American Muscle Car Masters

## Technical Rules
## 2024 Version 1.0

General

1.1 This rules set is a list of specifications a car is required to comply with in order to compete in American Muscle Car Masters (AMCM) competition events.

1.2 Whenever a component of the car is not defined or controlled within these rules, it is unrestricted.

1.3 Table 1 below summarizes key car parameters, as further defined in respective sections of the rules:

**Table 1: Key Car Parameters**

| **Power and Weight** | | | **Dimensions** | |
|---|---|---|---|---|
| Max horsepower | 500 Hp | | Wheelbase | 101-111” |
| Max RPM | 7000 | | Track width front and rear: | 79.0” |
| Minimum weight | 2830 | | Chassis min height | 3.0” |
| | | | Splitter min height | 3.0” |
| **Cost Caps** | | | Crankshaft centerline height | 9.5” |
| Dampers | $925 | | Fuel cell min height | 5.5” |
| Calipers | $650 | | Clutch diameter min | 7.25” |
| **Wheels and Tires** | | | Rear camber max | 2.0 degrees |
| Steel 15x10, 5x5 wheels | | | Spoiler max dimensions | 6.5” x 60” |
| Goodyear D2265 | | | Brake rotor max dimensions | 12.25” x 1.3” |

2. Chassis and Safety

2.1 Safety

2.1.1 Unless stated differently in these rules, cars must comply with the NASA CCR with regards to the following items:

2.1.1.1 Roll cage design/construction

2.1.1.2 Seat and installation

2.1.1.3 Driver harnesses and installation

2.1.1.4 Window net

2.1.1.5 Driver equipment (suit, helmet, head and neck restraint, etc.)

2.1.1.6 Fire extinguisher / fire system

2.1.1.7 Electrical cut-off switch

2.1.1.8 Fuel cells

2.1.2 Cars must have a current NASA yearly safety inspection. AMCM is authorized to perform a NASA annual safety inspection on AMCM cars.

2.1.3 Cars must have two functioning rear brake lights.

2.1.4 A camera with a view out through the front of the car must be installed and functioning during all track sessions.

2.1.5 AMCM officials have the right to exclude any car deemed unsafe.

## 2.2 Chassis and Roll Cage

- 2.2.1 Only steel round, square, or rectangular tubes are allowed for roll cage, chassis, and bumpers.
- 2.2.2 Roll cage structure must consist of 1.75” diameter x 0.095” thick DOM steel tubing (minimum).
- 2.2.3 Roll cage structure must be longitudinally braced to the front and rear clip using 1.75” diameter x 0.095” thick (minimum) DOM steel tubing.
- 2.2.4 A minimum of three driver side and two passenger side door bars must connect between the main hoop behind the driver and the A pillar hoop.
- 2.2.5 A steel 0.125” thick steel plate covering the driver side door bars must be welded or bolted to the driver’s side door bars. Welded plates may be fitted between the door bars and not be one contiguous plate.
- 2.2.6 Primary chassis rails between the firewall and main hoop must be at least 2” x 3” x 0.083” thick tubing.
- 2.2.7 Primary chassis rails forward of the firewall and rearward of the main hoop must be at least 2” x 2” x 0.083” thick tubing.
- 2.2.8 Cage tubes may go through the firewall, rear bulkhead, or floor and any number of tubes may be used for chassis stiffening.
- 2.2.9 Bumper bars must be at least 1.5” x 0.063” thick steel tubing.
- 2.2.10 A 1/8” thick (minimum) aluminum or steel plate to cover the area of the fuel cell must be mounted between the fuel cell and the rear end cover. A similar plate behind the fuel cell is recommended.
- 2.2.11 All cars must have a suitable drive shaft safety loop to contain the front/transmission end of the drive shaft in the event of a universal joint failure.
- 2.2.12 A skid plate to protect the oil pan is allowed as long as that is its only purpose.
- 2.2.13 Minimum clearance between the chassis rails and the ground is 3.0”.
- 2.2.14 No component other than the tires and suspension components may be lower than 3.0”.
- 2.2.15 Wheelbase, measured from centerline to centerline of the wheel hubs must be 101-111” and must match on both sides within 0.5”

## 2.3 Interior

- 2.3.1 The interior of the car must have steel or aluminum front and rear bulkheads and floors so as to completely isolate the driver’s area from the front and rear clip areas.
- 2.3.2 Any openings in the front and rear bulkheads and floor must be smaller than one square inch in area.
- 2.3.3 Cars may be “belly panned” as long as only aluminum or fiberglass is used such panning may extend to the body.
- 2.3.4 Nothing in the interior of the car, front or rear bulkheads, driver area floor, or belly pans (if used) may be designed or appear to have been designed to control air flow so as to generate downforce.
- 2.3.5 Driver comfort items such as cool suit tanks, windshield defogger blowers, windshield wipers, and air ducts and hoses are allowed and may be mounted inside the driver’s area.

2.3.6 Overflow tanks, breathers, and vents for the engine, transmission, rear axle, and fuel cell may not be mounted inside the driver's area.

2.3.7 Hoses carrying flammable fluids may run through the interior, but if so, they must be steel braided or reinforced and designed for this purpose.

3. Body and Aero

3.1 Cars must have a commercially available, modern Mustang/Camaro/Challenger body designed to be fitted over a full tube frame chassis. Examples include:

3.1.1 Metric Muscle Car and Sportsman bodies manufactured by AR Bodies

3.1.2 Sportsman, TA2, and Mustang/Camaro ABC Nextgen bodies manufactured by Howe or Five Star

3.2 Although it is the goal of the series to eventually field only cars with modern muscle car bodies, in consideration of the time and cost involved in changing a complete body, the following allowance is be given until the 2025 season:

3.2.1 Other full body fiberglass/composite/steel bodies are allowed.

3.3 Unless stated elsewhere in these rules, bodies must conform to their respective manufacturers' dimensions and specifications with no additional modifications.

3.4 Body minimum height and front to rear rake must be per their respective manufacturer's specification.

3.5 A rear spoiler or a rear wing is allowed.

3.5.1 Rear spoilers must be:

3.5.1.1 no taller than 6.5" (measured along the spoiler surface from the rear deck lid)

3.5.1.2 no more than 60" wide

3.5.2 Rear wings:

3.5.2.1 Must have solid, vertical end plates that fit within a rectangle measuring 12.75" horizontally and 8.25" vertically

3.5.2.2 May be multi element but all elements must be within the box created between the two end plates

3.5.2.3 Must be no more than 72.25" wide including the end plates

3.5.2.4 The trailing edge of the wing element (including Gurney flap if fitted) must be located no farther rearward than the rearmost point of the body and no farther vertically than 49"

3.5.3 The spoiler or wing may not be able to be adjusted or deflect while the car is in motion.

3.6 A front splitter mounted underneath the bumper cover must be used and must:

3.6.1 be flat and no thicker than 3/8" thick

3.6.2 follow the contour of the lower edge of the bumper cover when viewed from directly above

3.6.3 not extend farther forward than

3.6.3.1 1.75" from Point A (see diagrams in section 20) on Five Star gen 6 TA2 bodies OR

3.6.3.2 6.75" from Point B (see diagrams in section 20) on all other bodies

3.6.4 be no wider than 79.0"

3.6.5 not extend farther rearward than the forward bottom corner of the front fender wheel opening
3.6.6 be “fixed”, i.e. does not move during competition
3.6.7 be no closer to the ground than 3.0” at its most forward point
3.6.8 be no higher at its most rearward edge than 0.5” more than its most forward point with a tolerance of 1/8”.

3.7 Splitters may have up to three skid blocks added to their underside provided these are smaller than 3” wide, 2” deep, and ¼” thick. If present, these will not be included in splitter ride height measurements.
3.8 The body may have additional openings in order to route cooling air to allowed components or to the driver.
3.9 A full width and height front windshield of at least 3/16” thick lexan is required, it must be supported by at least three roughly evenly spaced braces and be fastened to these braces and along the perimeter.
3.10 A full width and height rear glass of at least 0.93” thick lexan is required. It must be supported by at least two roughly evenly spaced braces and be secured to these braces and along the perimeter.
3.11 Any exterior or interior mirrors may be used, but the driver must have a clear view of the right rear and left rear areas.
3.12 The hood may have louvers added, provided they meet the following restrictions:
3.12.1 A maximum of two louver strip panels may be added, each measuring no more than 15.5” long and 4” wide.
3.12.2 The trailing edge of the strip panels may be no farther forward than 8” from the trailing edge of the hood.
3.12.3 The inboard edge of the strip panels may be no farther outboard than 7.5” from the centerline of the hood.

## 4. Weight

4.1 Minimum weight is 2830 lbs
4.2 Ballast must be metal and securely mounted with at least grade 5 hardware.
4.3 Ballast may be mounted anywhere on the chassis rails or roll cage.

## 5. Engine

5.1 Any naturally aspirated GM, Ford, FCA based eight-cylinder engine is allowed.
5.2 Engine power, as measured following the dynamometer procedures in these rules, must fit below the curve created by the data points in Table 2 below.

**Table 2. Power Curve**

| **RPM** | 4000 | 5000 | 6000 | 7000 |
|---|---|---|---|---|
| **Horsepower** | 380 | 465 | 500 | 485 |

5.3 Maximum engine RPM is 7000.


5.4 Drivers must be able to demonstrate the engine RPM limiting method. This may be a dedicated RPM limiting device or by settings within the engine computer mapping, but it may not be able to be changed from the driver's seat.
5.5 There must be no way for the engine management parameters, including maximum RPM, to be externally adjusted while the car is on track.
5.6 There must be no torque or traction controlling devices or programming other than the driver actuated throttle pedal.
5.7 The engine crankshaft centerline at the front pulley/balancer must be at least 9.5" from the ground.
5.8 Engine setback, measured as the perpendicular distance between a line connecting the center of the two front lower control arms and the engine block to transmission bellhousing mating face must be no greater than 21.75".
5.9 Devices designed to disengage engine driven accessories or otherwise reduce engine drag while the car is in operation are not allowed.
5.10 Engine air inlet systems can be of any design and may be ducted to the front bumper cover, radiator duct, or windshield cowl area.

6. Engine Oil System
6.1 Only one engine driven or electric oil pump may be used.
6.2 Dry sump or wet sump systems are allowed.
6.3 Oil pressure accumulators are allowed.
6.4 Remote oil filters are allowed.
6.5 Oil coolers and electric fans for them are allowed.

7. Engine Cooling System
7.1 Only one front mounted radiator and one engine driven water pump may be used.
7.2 Electric or engine driven cooling fans may be used but engine driven fans may not have a temperature or manually controlled clutch.
7.3 The radiator may be fully boxed / ducted to an air inlet cutout in the front bumper cover.

8. Exhaust
8.1 Exhaust must exit away from the driver on the passenger side of the car.
8.2 The exhaust system must be designed so as to not serve any purpose other than routing engine exhaust gases.

9. Fuel System and Fuel
9.1 The fuel cell must be mounted behind the rear axle.
9.2 The bottom of the fuel cell must be at least 5.5" above the ground.
9.3 Fuel must be commercially available gasoline; no alcohol, nitromethane, etc.
9.4 Fuel coolers or chillers are not allowed.

10. Transmission/Clutch/Shifter
10.1 The transmission must be manually shifted, four speed units with all four gears and reverse operable.


10.2 The transmission must be mounted directly to a bellhousing that is itself mounted directly to the engine block.
10.3 There must be no way to disengage clusters or other parts of the transmission for drag reduction purposes.
10.4 Gear reduction devices between the transmission and rear axle assembly are not allowed.
10.5 Manually operated hydraulic clutch mechanisms are required.
10.6 The clutch must be at least 7.25” diameter.
10.7 Only direct, manual H type pattern shifters are allowed. No electric, pneumatic, or hydraulic shifting mechanisms are allowed.
10.8 Transmission fluid pumps and coolers are allowed.
10.9 Bellhousings that are explosion proof are not required, but strongly recommended.
10.10 Transmission case and bellhousing must be made of metal; carbon fiber or other composite material cases and bellhousings are not allowed.

11. Driveshaft
11.1 The driveshaft must be steel or aluminum.
11.2 There must be a suitable driveshaft containment loop near the front of the driveshaft.

12. Rear Axle
12.1 Rear axle assembly must be steel or aluminum.
12.2 Maximum rear wheel negative camber is 2.0 degrees.
12.3 Only spools or mechanical differentials are allowed.
12.4 Rear axle fluid pumps and coolers are allowed.

13. Front Suspension
13.1 Cars must have independent front suspension with one upper control arm and either one lower A arm or lower control arm with strut per side.
13.2 Upper control arms may not be longer the 11.0” from the centerline of the ball joint to the center of a line connecting the two inner mount points.
13.3 Lower control arms may not be longer than 19.0” from the centerline of the ball joint to the center of the front inner connecting point.
13.4 Control arms and spindles must be steel or aluminum.
13.5 Only one damper with an individual retail cost of no more than $925 and one coil type spring per front wheel is allowed.
13.6 Dampers and springs must be directly connected to the chassis and lower control arm. No remote damper or spring mechanisms are allowed.
13.7 Dampers may be adjustable and spring rubbers and ride height adjusters may be used but changes may not be able to be made while the car is in motion.
13.8 One front anti-roll bar may be used and it may be driver adjustable.
13.9 Other than as specified in this section 13, no other devices to control front suspension motion are allowed.
13.10 Maximum front track width, measured at the outside of the tires per 21.8, is 79.0”.

14. Rear Suspension

14.1 Rear suspension must be non-independent, solid live axle.

14.2 Axle assembly must be located longitudinally either:

14.2.1 By three independent links, each attached to the axle and the chassis; two lower links attached towards the wheel side of the axle tubes and one upper link attached near the center of the axle assembly, and all attached on the chassis forward of the rear axle.

14.2.2 By two independent “truck arms”, each attached to the rear axle and to the chassis forward of the rear axle.

14.3 Link attachments at the rear axle must be such that the axle assembly does not rotate under torque loads.

14.4 Three link system lower links may not be longer than 29.0” measured center to center of the mounting bearing/bushing.

14.5 Three link system upper link may not be longer than 30.0” measured center to center of the mounting bearing/bushing.

14.6 The axle assembly must be located laterally with a watts type or panhard type link.

14.7 Axle locating links may not be de-coupled, spring loaded, or torque damping style.

14.8 Axle locating links and mounting brackets must be steel or aluminum.

14.9 Only one damper with an individual retail cost of no more than $925 per side of the axle assembly is allowed

14.10 Only coil type springs are allowed.

14.11 Dampers and springs must be directly connected to the chassis and axle assembly. Remote damper or spring mechanisms are not allowed.

14.12 Dampers may be adjustable and spring rubbers and ride height adjusters may be used but changes may not be able to be made while the car is in motion.

14.13 One rear anti-roll bar may be used and it may be driver adjustable.

14.14 Other than as specified in this section 14, no other devices to control rear axle assembly motion are allowed.

14.15 Maximum rear track width, measured at the outside of the tires per 21.8, is 79.0”.

15. Steering System

15.1 The steering system must be front steer, rack or steering box design.

15.2 Hydraulic power steering pumps and steering fluid coolers are allowed.

15.3 Systems designed to adjust or correct steering input in addition to driver input are not allowed.

16. Electrical

16.1 The car must have a battery, a starter, and associated wiring of sufficient capacity to enable the driver to restart the engine while it is hot and the car is out on the racing track.

16.2 All positive terminals must be covered.


17. Brakes
    - 17.1 Front calipers must not have more than six pistons, rear calipers must not have more than four pistons.
    - 17.2 Calipers must have an individual retail price of no more than $650.
    - 17.3 Rotors must be ferrous material, may not be cross drilled, and must be 12.25” maximum diameter, 0.8” minimum thickness, and 1.3” maximum thickness.
    - 17.4 Dual master cylinders are allowed.
    - 17.5 Manual front to rear brake adjusting systems are allowed.
    - 17.6 Brake fluid recirculators are allowed but not recommended.
    - 17.7 Systems designed to correct or modulate brake pressure in order to limit tire lock (ABS) or limit torque (traction control) are not allowed.

18. Wheels
    - 18.1 Wheels must be steel, commercially available, designed for racing, and in unmodified form.
    - 18.2 Wheel bolt pattern must be 5x5.
    - 18.3 Wheels must be 15” diameter,10” wide, and weigh at least 20lbs without including balancing weights, valve stems, or any spacers between the wheel and the hub.
    - 18.4 Although it is the goal of the series to eventually field only cars with 5x5 pattern wheels, in consideration of the time and cost involved in changing existing cars from other series, the following allowance is be given until the 2025 season: wide 5 pattern wheels and associated hub hardware are allowed.
    - 18.5 Devices designed to maintain tire pressure constant as tire temperature increases are not allowed.

19. Tires
    - 19.1 Allowed dry condition tires are Goodyear model D3063 (supersedes D2265).
    - 19.2 Only one set of four new dry tires allowed per race weekend.
    - 19.3 The four tires used in qualifying must be used for the rest of the race sessions of that event.
    - 19.4 If a car fails to make qualifying, the four tires used during the next session the car runs must be used for the rest of the race sessions of that event.
    - 19.5 AMCM officials may approve substitution of a tire that has obvious physical damage.
    - 19.6 Allowed wet condition tire is the Goodyear model D3070.
    - 19.7 Drivers have the choice to run either dry or wet tires, but all four tires must match.
    - 19.8 Tires are available through GUD Racing.

20. Appearance
    - 20.1 Cars must have a holistic graphics scheme that uses at least three colors, not counting Required Graphics, and must be in good aesthetic condition at the beginning of competition events.
    - 20.2 Cars must have the Required Graphics as defined in this section. All Required Graphics are included in the annual AMCM driver’s membership package and replacements are available through the AMCM web site.


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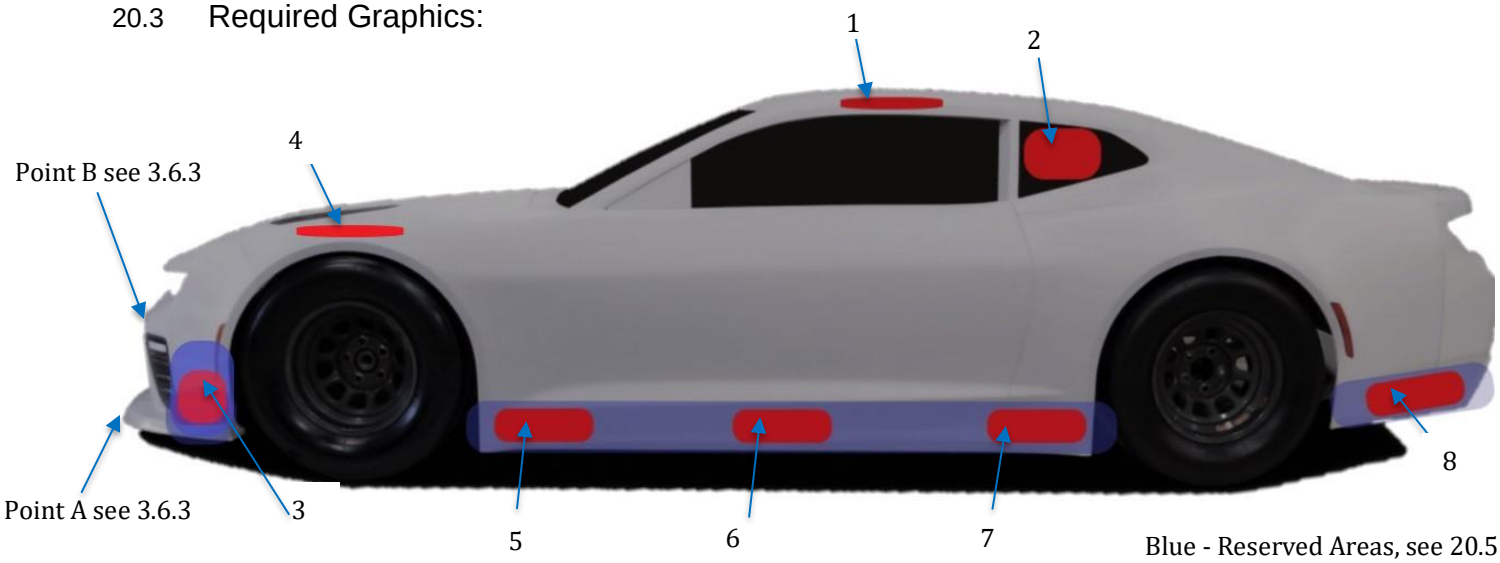
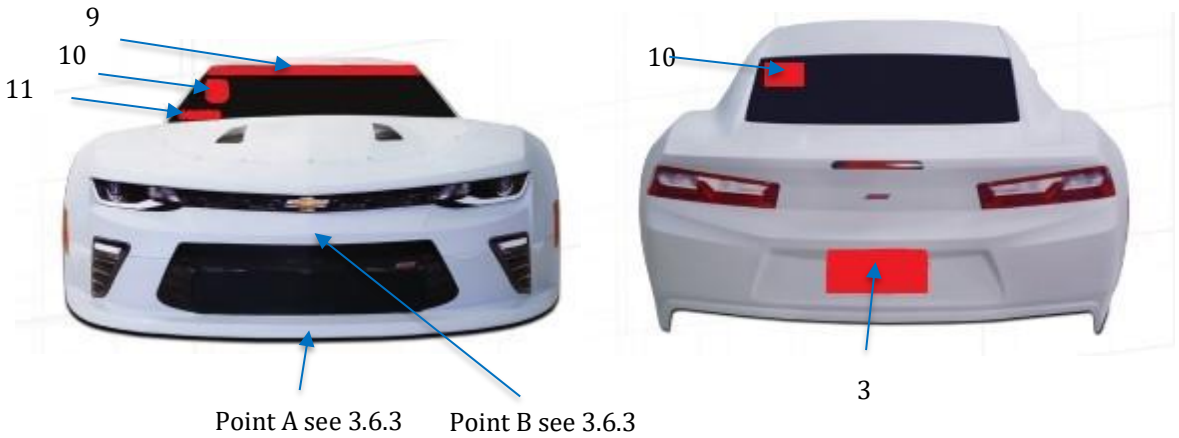
20.3 Required Graphics:




| Graphics Location | Graphics Item |
|---|---|
| 1 | Driver's flag of origin and name (driver's side only) |
| 2 | Large car number and blackout surround, see additional detail in 20.4 |
| 3 | AMCM logo decal and NASA logo decal (one above the other, driver's choice which is above/below) |
| 4 | Goodyear logo decal |
| 5 | AllStar logo decal |
| | |
| 6 | GUD Racing logo decal |
| 7 | Racing Junk logo decal |
| 8 | AR Bodies logo decal |
| 9 | AMCM windshield banner |
| 10 | Small car number |
| 11 | Driver name |


20.4 The area including the quarter window end extending forward until the opening for the door window must be blacked out. The large sized car numbers must be attached fully within this blacked out area. NACA air inlet ducts are allowed within this area, but must be black and the numbers carefully trimmed and fitted to the contours.

20.5 No additional company logos are allowed within the Reserved Areas highlighted in blue

20.6 An AMCM logo decal must be placed clearly in view of the video taken by the camera required in 2.1.4 and oriented such that it is readable when viewing recorded video.

21. Verification and Tolerance

21.1 Engine power must be validated by completing and submitting a Power Configuration Form (see Appendix A), a Dyno Results Form (see Appendix B), and a graph of the engine dyno validation pulls showing Hp Vs RPM.

21.2 Engine power validation must be done yearly, before the first competition event the car competes in for that year.

21.3 Engine power validation only needs to be done once for the yearly racing season unless changes are made to the car that affect power.

21.4 All dimension measurements will be taken in post raced, as raced condition with the driver inside the car and tire pressures set to 25psi.

21.5 Unless otherwise stated in these rules, a tolerance of one half of the last digit specified in the rule will be allowed.

21.6 Fuel pressure noted on the Power Configuration form will be allowed a 2psi tolerance.

21.7 Timing noted on the Power Configuration form will be allowed a 1degree tolerance.

21.8 Track width will be determined by setting a plate flush against the outside of the tires on both sides of the car, taking measurements in front of and behind the tire at a point 3” off of the ground, and averaging these two measurements.

21.9 AMCM Officials have the right to inspect any aspect of the car while it is at competition events, including requiring disassembly in order to enable inspection.

21.10 It is the driver’s responsibility to prove the legality of the car and its components to AMCM officials.

**AMCM Appendix A – Power Configuration Form**

Car Number: _____ Engine Displacement (cid):_____

List or describe engine rotating assembly, heads, and intake components:

_____

_____

_____

_____

List or describe fuel delivery and ignition components:

_____

_____

_____

_____

List or describe exhaust configuration:

_____

_____

Describe location and sizes of intake or exhaust restrictors and throttle stops:

_____

| | | | |
|---|---|---|---|
| Fuel Pressure (efi only) | | Intake restrictor orifice size | |
| Base timing degrees | | Idle RPM | |

_____

Driver's Signature Date

_____

Name

**AMCM Appendix B – Dyno Results Form**

Car Number: _____ Engine Displacement (cid):_____

| | |
|---|---|
| Altitude of Dyno Shop in feet | |
| Hood Open | |

| | |
|---|---|
| Rear Tires Set at 26psi | |
| Dyno set to SAE J1349, smoothing 5 | |

| **Dyno Pulls (all with water temp between 165 and 210 degrees F)** | | | | | |
|---|---|---|---|---|---|
| Pull No. | Hp @ RPM 3000 | Hp @ RPM 4000 | Hp @ RPM 5000 | Hp @ RPM 6000 | Hp @ RPM 7000 |
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| AVERAGE | | | | | |

_____ _____

Owner's Signature Date Dyno Operator's signature Date

_____ _____

Name Name

## AMCM Appendix B – Dyno Procedure

1. Engine power measurements following this procedure are valid until and unless changes are made to the engine or drivetrain (other than final drive ratio) that alter the power output.
2. Only dyno runs on DynoJet brand dynamometers are acceptable.
3. If more than one computer tune/engine configuration is desired, each will require its own Dyno Results form, dyno results graph, and Power Configuration form.
4. If a competitor is unable to complete a dyno inspection prior to competition, AMCM may seal the car's hood and computer access ports to enable a post race weekend inspection.
5. AMCM may choose to require a dyno re-certification at any time and may seal a car's hood and computer access ports during a race weekend to enable performing such a re-certification at a convenient time after an event. Should the car fail an AMCM required re-certification, disqualification will generally be limited to one race.
6. All dyno readings must be corrected to SAE J1349 Rev JUN90 (29.23 in/hg, 77F, zero humidity) and the dyno's smoothing function must be set to 5
7. Car must be in "ready to race" configuration with regards to engine and drivetrain.
8. Rear tires must be set to 26psi.
9. Hood must be open during dyno test runs.
10. Electric engine fans and or external cooling fans may be used.
11. Dyno pulls will be made in 4$^{th}$ gear or at a 1:1 ratio.
12. Altitude of the dyno shop must be recorded. Dyno runs made at locations with elevation greater than 1,500 feet higher than the track may not count as being valid at that track. AMCM may decide to waive this requirement for certain circumstances.
13. Three consecutive runs must be made under full power. Starting RPM must be no higher than 2500. Ending RPM must be 7000RPM.
14. Dyno runs must be made with water temperature in the normal operating range of 165F-210F and drivetrain fluids up to a normal running temperature. (A "practice pull" is highly recommended prior to 3 consecutive runs to ensure proper drivetrain temperatures.) Water temperature may be verified using external temperature measurements such as an infrared temp gun at a thermostat housing or a metal tube section of the line returning water to the radiator.
15. The horsepower at the given RPMs of the form of each run will be noted on the inspection sheet. It will be useful to ask the dyno operator to present the pull data in tabular form instead of only in graph form.
16. The average of the three consecutive runs will be calculated and noted on the inspection sheet. This average horsepower is what will be used to determine the car's legality.
17. All HP results may be rounded to whole numbers. In the case where the measurement falls exactly on the halfway point (.50), it must be rounded down in favor of the competitor i.e.- 260.50 = 260 and 260.51 = 261