

**2012 ORANGE COUNTY SPEEDWAY RACING, LLC
LATE MODEL SELECT DIVISION
ORANGE COUNTY SPEEDWAY GENERAL RULES WILL ALSO APPLY FOR
THIS DIVISION.**

RULE BOOK DISCLAIMER: *The rules and/or regulations set forth herein are designed to provide for the orderly conduct of racing events and to establish minimum acceptable requirements for such events.*

Orange County Speedway

General Track Rules also governed this division. *These rules shall govern the condition of all events, and by participating in these events, all participants are deemed to have complied with these rules. NO EXPRESSED OR IMPLIED WARRANTY OF SAFETY SHALL RESULT FROM PUBLICATIONS OF OR COMPLIANCE WITH THESE RULES AND OR REGULATIONS. They are intended as a guide for the conduct of the sport and are in no way a guarantee against injury or death to a participant, spectator, or official. The race director shall be empowered to permit reasonable and appropriate deviation from any of the specifications herein or impose any further restrictions that in his/her opinion does not alter the minimum acceptable requirements. NO EXPRESSED OR IMPLIED WARRANTY OF SAFETY SHALL RESULT FROM SUCH ALTERATION OF SPECIFICATIONS. Any interpretation or deviation of these rules is left to the discretion of the officials. Their decision is final.*

ALL MODEL, ENGINE OR EQUIPMENT CHANGES OR MODIFICATIONS NOT SPECIFICALLY ADDRESSED IN THIS RULE BOOK MUST BE SUBMITTED TO ORANGE COUNTY SPEEDWAY FOR CONSIDERATION OF APPROVAL. ALL EQUIPMENT IS SUBJECT TO THE APPROVAL OF TRACK OFFICIALS. TRACK OFFICIALS MAY ASSESS WEIGHT PENALTIES FOR CARS, CAR PARTS, COMPONENTS AND/OR EQUIPMENT DEEMED AS NOT IN COMPLIANCE WITH THESE RULES. CARS, CAR PARTS, COMPONENTS AND/OR EQUIPMENT WILL NOT BE CONSIDERED AS HAVING BEEN APPROVED BY REASON OF HAVING PASSED THROUGH INSPECTION AT ANY TIME OR ANY NUMBER OF TIMES UNOBSERVED OR UNDETECTED. ANY CAR, CAR PART, COMPONENT AND/OR EQUIPMENT WHICH DOES NOT CONFORM TO SPECIFICATIONS OR TOLERANCES CONTAINED IN THE ORANGE COUNTY SPEEDWAY RULE BOOK, OR IS NOT OTHERWISE APPROVED BY ORANGE COUNTY SPEEDWAY, MAY NOT BE USED IN COMPETITION IN 2007.

I. COMPETING MODELS

1.1 Late Model Select Car Races: Open to American-made automobiles provided they comply with, and adhere to, specifications as outlined for this Division. Late Model Select Car races are open to eligible 2000 through 2010 models of American made passenger car production sedans and the approved 2007 composite body models after September 4, 2007. The approved composite body models are the only 2007 - 2011 models permitted.

1.2 Approved Competition Models: 2000 - 2012

ORANGE COUNTY SPEEDWAY has approved a composite body eligible for competition. The bodies must contain the approved composite roof (and components), approved composite or plastic type fenders and approved composite or plastic type quarter panels, approved front and rear bumper covers and approved hood. The approved doors and deck lid must be steel or aluminum. The following are the only approved models that will be permitted.

II. GENERAL CAR BODY REQUIREMENTS

2.1 Car Bodies: The car body must be acceptable to Track Officials and meet the following requirements:

- A. The 2000 through 2012 eligible bodies will be volume production models as selected and approved.
- B. Cars should be neat appearing. The interior, exterior, and underside of the car must be painted. Clear coat only will not be permitted. All front and rear bumper covers must be painted the same color as the car including the bolts and rivets. The interior and exterior of all floors, firewalls and the interior of all body panels should be painted using only light/bright colors which must provide a smooth surface. Paint or vinyl must not be textured. Vinyl may only be used on the exterior of body parts. Thermal barriers coatings may be applied to the driver's area only and is subject to Track Officials' approval.
- C. Original dimensions of all bodies must remain as manufactured, except for changes that may be necessary for tire clearance. Straight or slab sides will not be permitted.
- D. All body and chassis dimensions will be with the driver in the car.
- E. All cars must have complete bodies, hoods, front fenders, quarter panels, front and rear bumper covers in top quality condition. All aftermarket bodies and trim parts must be acceptable to Track Officials.

F. Any type of adjustable body mount will not be permitted. All body mounts must be metal or 1/8 inch polycarbonate and non-adjustable.

G. Streamlining of the contours of the car such as headlights, front bumper cover, front air dam, grilles, roof, and the top of the windshield and rear window will not be permitted. Installation of air directional devices, underpans, baffles, dividers, shields or the like beneath the car or the car's hood and fender area, front firewall, floor, rear firewall area, rear deck and quarter panel area will not be permitted. Any part or component of the car, not previously approved by Track Officials, that has been installed or modified to enhance aerodynamic performance, will not be permitted. Cars must remain standard in appearance. Grilles must be stock standard height and width and mounted in the stock location.

H. A full windshield and rear window in good condition are required. The windshield and rear window must be installed in their original standard positions.

I. All doors must be fastened in a manner acceptable to Track Officials.

J. Fenders must not be cut or altered except for wheel or tire clearance which must be acceptable to Track Officials.

K. The interior area of the car must be completely enclosed from front to rear with firewalls made of not less than 24 gage (0.025 inch thick) magnetic sheet steel. The floor area on the left side must not be lower than the top of the frame rails except directly under the seat where the floor may be dropped not lower than one (1) inch above the bottom of the frame rail. The floor area on the right side of the seat may be raised a maximum of eight (8) inches to the top of the drive shaft tunnel and extend to the right door panel. All interior panels must be welded.

L. Cars must be equipped with approved front and rear bumper covers for the make and model and must be in top quality condition.

2.2 Overall Car Weight

A. Throughout the Event all cars must meet the minimum weight requirements with fuel, oil and water (with driver).

BE SURE TO LOOK AT SECTION 5.11 for crate info as well:

B. All models with a built motor and 350 carburetor must maintain a minimum weight of 3,080 pounds with a minimum right side weight of 1,375 pounds for a Chevy and a Ford.

C. All cars with a 604 crate and a 500 carburetor, with all 1.5 rocker arms, must weigh 3,125 pounds with a minimum right side weight of 1,425 pounds.

D. All cars with a ZZ3 or ZZ4 crate must maintain the following:

a. ZZ3 or ZZ4 crate with a 390 carburetor, must weigh 3,100 pounds with a minimum right side weight of 1,400 pounds.

b. ZZ3 or ZZ4 crate with a 500 carburetor, must weigh 3,075 pounds with a minimum right side weight of 1,375 pounds.

c. Steel headed motor Late Model or straight plug with a 500 carburetor will be 3,125 pounds with a minimum right side weight of 1,425

d. Crate engine is defined as an engine sold as an over the counter engine assembly. Approved crate engines are:

a. G.M. #10185072 (ZZ3)

b. G.M. #24502609 (ZZ4)

c. G.M. #88958603

d. Chrysler #5249499 (Magnum 380)

e. Ford #M-6007-A351

f. Ford #M-6007-A351R

g. Ford #M-6007-D351R

a. The only parts changes or substitutions that will be allowed to the crate engine will be the oil pan and pickup, water pump, and distributor on engines that are supplied with a distributor from the factory.

b. All sealed crate engines must maintain all factory internal parts and dimensions. Such as bearings, rings, gaskets, etc. Sealed crate engines can and will be disassembled for inspection as needed.

c. Unsealed crate engine: Only factory original direct replacement parts, as specified in each manufacturers

listing of parts for their engine may be used in the repair or rebuild of the crate engine. The only exception will

be that direct replacement aftermarket piston rings, bearings (mains, rods, and cam bearings) and gaskets will be allowed to be used in the repair or rebuild of the crate engine. Absolutely no other aftermarket replacement parts may be used in the crate engine. Absolutely no high performance parts (Aftermarket or factory OEM) may be used in the crate engine.

d. Maximum overbore on the crate engine is .035" including clearance and wear.

e. Crate engines must have a minimum piston to head clearance of G.M.050", Chrysler .075", Ford .060". This measurement will be the sum of the deck height (Piston to deck) and compressed head gasket thickness. Piston must be below deck of block.

f. Valve job limited to valve seat and valve only. No bowl cut or grinding below seat.

g. Unsealed crate engines must have a minimum cylinder head combustion chamber size of 58 cc or greater for all engines.

h. The heads on the unsealed crate engine may be machine cut beside the valves only, to equalize the chamber cc. Any other machining or grinding on the cylinder head will not be permitted.

i. The camshaft on the crate engine must remain stock as delivered in the engine from the factory. Factory specs will be tech item intake lift .474", exhaust lift .510". Duration and profile can and will be checked as necessary. No cam bushings allowed in factory timing gear.

E. All cars with a Ford and Dodge crate engine may run, but must receive prior approval by Track Officials before competing.

F. Unless otherwise authorized by the Track Officials, at all times during an Event, all weights will be measured by Track Officials using the scales provided by the Track. It is the responsibility of each race team to ensure that its car meets the specified minimum weight requirements for this division on these scales.

G. Weights may be changed at any time for competition purposes.

H. All fasteners and mounting hardware must be made of solid magnetic steel. Body panel rivets may be aluminum.

2.3 Added Car Weight

Added weight must be in block form of not less than five (5) pound blocks (no pellets) and painted white with the car number permanently legible on it. Added weight, inside an approved weight container, may be bolted or welded to the front sub-frame lower suspension mounting cross member but must be behind the front spindle. Added weight must be securely bolted in place in a manner acceptable to Track Officials. Weight may not be added to the outside of the frame rails, below the bottom of the frame rails, ahead of the front spindles, to any suspension parts, behind the rear axle or inside the driver's compartment. Dislodged weight will not be permitted to be returned to the car for weighing after race. Weight containers, if used, must only be attached to the inside of the main frame rails and not be lower than the bottom of the frame rails. Center mounted weight containers will be permitted but must be securely welded in place and be acceptable to Track Officials.

2.4 Car Weight After Competition

A. After a car has qualified or raced, only fluids consumed, as determined by Track Officials, may be replaced.

B. When cars are weighed after a race, only water in the radiator, oil in the engine, and fuel in the fuel cell may be added. Wheels and tires must not be changed, unless otherwise authorized by Track Officials.

C. Track rules may permit a percentage of weight loss per lap after competition.

DETAILED CAR BODY REQUIREMENTS: In addition to the General Car Body Requirements specified in subsection

2, the following Detailed Car Body Requirements must be maintained. For more detailed body installation and guideline dimensions, refer to the rear pages of the Rule Book.

3.1 Spoilers

All spoilers must be approved by Track Officials. An approved spoiler must be a solid non-adjustable part of the body which controls the flow of air over one (1) surface only.

3.1.1 Front Air Dam

A. The approved front air dam must maintain a minimum ground clearance of four (4) inches for all models.

B. All support brackets must be mounted to the rear of the air dam. Brackets and mounts must not be used or installed as air directional devices.

C. The leading edge of the air dam must not extend more than three (3) inches forward of the bumper measured at any point across the bumper.

D. On all approved models the leading edge of the air dam when measured from the centerline of the right front spindle must not exceed 46 inches and must not be less than 45 inches. Front air dam extensions, made of flexible plastic type material, will be permitted to be attached to the bottom of the front air dam (bumper cover).

It must be flush mounted, stationary, securely fastened, single layer, not exceeding a maximum of 3/16 inch thick and maximum of four (4) inches in height and must be mounted parallel to the bumper cover. The air dam extension must be secured in a manner that will prevent movement of the air dam extension while in competition.

3.1.2 Rear Spoilers

A solid or two piece spoiler must be attached to the rear of the car. All cars will be permitted to use a rear spoiler not exceeding five (5) inches in height and not more than 54 inches in width, measured around the back side of the spoiler, and must be attached to and centered on the rear of the car. Spoilers must be solid 1/8 inch metal or 1/4 inch clear polycarbonate and control the flow of air over one (1) surface only. Rudders or forward mounting brackets will not be permitted. A maximum of 39 inches from the ground to the top of the spoiler (with the driver in the car) will be permitted. The maximum spoiler height from the ground for the 2000-2002 Monte Carlo will be 40 inches in the center and 39 inches on each end. The spoiler must maintain a maximum of five (5) inches in height. The rear spoiler angle must be set between 50 degrees and 60 degrees. Spoiler braces on the back of the spoiler will be permitted. Nonadjustable rear spoiler supports will be permitted inside the trunk area.

3.2 Windows & Lights & Mirrors

3.2.1 Windshield and Windshield Braces

A clear polycarbonate windshield must be used in lieu of a standard glass windshield. Additional windshield tint or tape may be added for adverse sunlight conditions and is limited to the driver's side of the windshield. The windshield must be a minimum of 1/8 inch thick and have a minimum of three (3) metal straps or braces 1/8 inch by one (1) inch installed inside the windshield. The straps must be bolted to the roof panel or roll bar at the top and the dash panel at the bottom with minimum 5/16 inch diameter bolts. A piece of rubber stripping must be installed between the windshield and straps. The straps must be installed in a manner that will not obstruct the vision of the driver.

Windshield clips three (3) inches wide by one (1) inch by 1/8 inch thick must be installed if the windshield is not riveted or bolted in place. If used, three (3) clips must be bolted to the roof of the car and extend over the edge of the windshield. Two (2) clips must be bolted to the cowl and extend over the bottom of the windshield. Clips must be spaced a minimum of 12 inches apart. Additional windshield fasteners may be used if acceptable to Track Officials.

3.2.2 Rear Window

A. Only clear standard production 3/16 inch thick polycarbonate must be used in the rear window opening. The standard production polycarbonate must be formed to the same shape and size as the original equipment glass. Access holes in the rear window for the rear jacking bolts must not exceed a maximum diameter of 1-1/4 inches. The rear window must be secured in place with bolts or rivets. Track Officials may require the outside of the rear window be secured with a minimum of two (2) metal straps on the outside, not less than 1/8 inch thick by one (1) inch wide, evenly spaced, and bolted to the roof at the top and the deck support panel at the bottom acceptable to Track Officials.

The inside of the rear window must be supported by at least two (2) metal braces permanently mounted without any adjustments acceptable to Track Officials.

B. The rear window width will be determined by measuring down three (3) inches from the top of the rear window at the edge of the roof on the roof centerline. The minimum width of the rear window for the following models must be:

3.2.3 Side Window Glass / Window Screen: The window screen must be a rib type, made from minimum 3/4 inch, maximum one (1) wide material with one (1) square opening between the ribs. All window screen mounts must be a minimum 1/2 inch diameter solid magnetic steel rod or a minimum one (1) inch wide by 3/16 inch thick flat magnetic steel with mounts welded to the roll cage.

3.3 Doors

Car doors, of not less than 24 gage (0.025 inch thick) magnetic sheet steel, must be the same size and configuration and match left side to right side as approved by Track Officials. The maximum outside width of the doors from left to right side must not exceed 77 1/2 inches. Straight or slab doors will not be permitted. The doors must be roll-formed evenly so the top and bottom edge of the door including the rocker panel trim moldings is a minimum of 1-1/2 inches inside the outermost roll of the door, mid-way down the door, at any point between the front and rear tires. All doors must be securely fastened to the front fender and the rear quarter panel in a manner acceptable to Track Officials. Cars will not be permitted to compete without doors unless a magnetic steel anti-intrusion plate, minimum 0.090 inch thick has been installed on the outboard side of

the door bars and welded or bolted in place. The anti-intrusion plate, if bolted, must be attached with not less than four (4) minimum ½ inch diameter bolts bolted to tabs of not less than 1/8 inch thick that are welded to the door bars. Door bars must not be drilled when attaching the anti-intrusion plate by bolts. Approved composite body will be permitted consisting of doors that must be steel or aluminum.

3.4 Fenders, Quarter Panels & Rocker Panels: The front fenders, quarter panels, and rocker panels must be acceptable to Track Officials and meet the following minimum requirements:

A. The front fenders and quarter panels must be one-piece only and be of not less than 24 gage (0.025 inch thick)

magnetic sheet steel and must be installed in their standard location as referenced by the approved model car. As an option the front fender from an approved manufacturer must be made from flexible, rubberized plastic material maintaining dimensions for the approved model car and must be approved and be acceptable to Track Officials. If the flexible, rubberized plastic fender is used it must be used as manufactured. No fiberglass fenders will be permitted.

When measured anywhere across the rear of the car, a maximum of three (3) inches difference (plus or minus) from a stock production car will be permitted. When cutting the front fenders or quarter panels for clearance, the only modifications permitted will be cutting for tire clearance with a maximum of 10 inches measured from the edge of the wheel to the edge of the front fender or quarter panel.

B. All front fenders and quarter panels must be roll-formed to cover the tires; left and right side must match. The front fenders and quarter panels must not extend out past the tire sidewall and must be permanently mounted with metal or 1/8 inch thick clear polycarbonate, non-adjustable supports and brackets. All quarter panels must be roll formed in a manner acceptable to Track Officials and must fit the quarter panel template above the center of the rear axle and forward 17 inches below the center of the quarter window. The left and right quarter panels must be the same dimension and roll. Interior wheel wells must be constructed of magnetic sheet steel and must either be radiused the same as the tire or they may extend from the front of the rear wheel upward, turn and continue horizontally to the rear bumper cover. If crush panels are used, they must be a maximum of eight (8) inches wide and constructed with aluminum.

C. Excessive modifications to the rocker panels will not be permitted. Rocker panels on the left and right sides must match and be the same size and shape. The rocker panels must be magnetic sheet steel and remain straight and parallel with the frame rails. Vertical rocker panel extensions, made of plastic type material, a maximum thickness of 3/16 inch and a maximum height of four (4) inches will be permitted. They must be installed vertical and flush with the outer sheet metal at the bottom of both left side and right side rocker panels, and be the same front to rear length as the rocker panels. The vertical rocker panel extensions must be stationary, securely fastened, single layer and must be mounted parallel to the rocker panel. The rocker panel extension must be secured in a manner that will prevent movement of the rocker panel extension while in competition. All bodies must be mounted on the centerline of the tread width and the frame.

D. An approved composite body will be permitted consisting of quarter panels and fenders from an approved manufacturer that are made from composite or plastic type material. The approved quarter panel and fender must be a one-piece design only, maintaining dimensions for the approved model car and must be approved and be acceptable to Track Officials. The approved composite or plastic type material quarter panel and fender must be used as manufactured.

E. The maximum outside width of the front fenders, quarter panels and rocker panels from left side to right side must not exceed 77-1/2 inches with the following exception. The maximum width across the front fenders from left side to right side at the location where the front fenders attach to the front bumper cover must not exceed 78 inches. Front fenders, quarter panels and rocker panels configuration must match from left side to right side.

3.5 Grilles: Grille openings must retain the same shape and size as the stock production original equipment. The grille opening may be covered with two (2) layers of screen wire attached to the grille. Screen wire mesh must be porous. All air must enter the front of the car through the grille openings only. Installation of air directional devices, underpans, baffles, dividers, shields or the like, will not be permitted.

3.6 Hoods & Roof: The hood and roof must be acceptable to Track Officials and meet the following requirements;

A. Only flat hoods will be permitted on all models. The front edge of the hood must seal to the front bumper cover or fit into a slot a minimum of two (2) inches in depth across the entire width of the front of the hood and be painted the same color as the car. The hood must seal tight to the front fenders and the windshield at all times.

B. The hood must close in the original position and maintain the original configuration. The hood must be made of reinforced fiberglass or metal.

C. The hood must have positive magnetic solid steel pin fasteners, a minimum of three (3) across the front--one (1) at each corner, one (1) in the center and one (1) at each rear corner and one (1) in the center, if necessary--to seal the hood to the windshield. All removable hood pins must be a minimum of 1/8 inch diameter and have a minimum 1 (1) inch inside diameter vertical loop to facilitate ease of removal. Metal hood pin bezels must be installed at all times. A minimum of two (2) magnetic solid steel pin fasteners or quick release fasteners, if necessary, must be installed on each front fender, evenly spaced between the front and rear pin fasteners. The location of the hood pins and bezel plates must not interfere with the installation of any inspection template.

D. Holes will not be permitted in the hood for cooling. Hood bubbles or scoops will not be permitted.

E. Hood openings that permit air to the carburetor air filter will not be permitted.

F. All roofs must be the same size and shape as a stock production roof. Roof panels must be permanently mounted with one-piece, solid, magnetic steel, non-adjustable supports and brackets in the stock position the same as a stock production roof for the make and model car being used. Roof panels from an approved manufacturer may be of a one-piece design which includes the windshield bed and windshield, the rear and side window locations and rear and side window(s), with a magnetic steel roof solidly mounted as an integral part of the assembly. The roof must be securely mounted to the roll cage at each corner according to the manufacturer's specification. If the one-piece design assembly is used it must be used as manufactured. All roofs must be acceptable to Track Officials.

G. As an option (beginning September 4, 2007) for 2007 model cars only, an approved composite body will be permitted consisting of an approved composite roof panel from an approved manufacturer. The roof panel must be of a design which will include the windshield bed and "A" posts, and the rear window bed, the "8" and "e" posts and side window(s). When the approved composite body is used it must be used as manufactured. All panels must be flange-mounted and remain as manufactured. The windshield bottom bed, "8" post, "C" post and side windows and the rear window bed may be separate pieces as long as they are flange-mounted and remain as manufactured. These body panels must conform to the ORANGE COUNTY SPEEDWAY approved manufacturer templates and the ORANGE COUNTY SPEEDWAY-approved body and components.

3.7 Rear Deck Lids/Trunk: Rear deck lids, of not less than 24 gage (0.025 inch thick) magnetic sheet steel, and the trunk area must be acceptable to Track Officials and meet the following requirements:

A. The rear deck lid area must maintain the same dimensions and body lines as a standard production car. Positive magnetic solid steel pin fasteners must be used on the right and left sides of the deck lid. Holes and/or other modifications that, in the judgment of the Track Officials, were made with the intent of weight reduction will not be permitted. As an option approved composite body will be permitted consisting of a deck lid that must be steel or aluminum.

B. The trunk compartment area must be constructed of magnetic sheet steel, not less than 24 gage (0.025 inch thick), welded into position.

C. The trunk floor around the fuel cell must be complete. When the deck lid is raised, the perimeter around the trunk area and down to the fuel cell or trunk must be enclosed with not less than 24 gage (0.025 inch thick) magnetic sheet steel. When the trunk area is enclosed from the left quarter panel to the right quarter panel, no part of the trunk floor can be lower than the top of the frame rail. If crush panels are used, they must be a maximum of eight (8) inches wide and constructed with aluminum.

3.8 Bumper Covers: The bumper covers must be approved by ORANGE COUNTY SPEEDWAY, be acceptable to Track Officials and meet the following requirements:

A. The approved front and rear bumper covers must be installed in the same location as far as the height, width, and depth as a stock factory production bumper.

B. Magnetic steel tubing must be used to reinforce the front and rear bumper covers. Front and rear bumper cover reinforcement bars must be installed and acceptable to Track Officials. The bumper cover reinforcement bar must be constructed of a minimum one (1) inch outside diameter with minimum wall thickness magnetic steel tubing. The bumper reinforcement bars must be attached to the sub-frames by welding a maximum of two (2) horizontal tubes of the same diameter or a minimum of one (1) inch diameter outside steel tube as used for the bumper cover reinforcement bar. The tubing must not be exposed and must remain behind the bumper covers. Holes and/or other modifications to the bumper cover reinforcement cars or attaching bars will not be permitted.

C. The front and rear bumper covers must be solid. Holes will not be permitted.

D. All front and rear bumper covers must be a two (2) piece design, separated in the center from top to bottom, and must be made of a flexible, rubberized plastic material. All front and rear bumper covers must be painted the same color as the car including the bolts and rivets.

3.9 Car Body Measurements: For detailed body installation and dimensions refer to the rear pages of the Rule Book.

3.10 Templates: A car must conform to any and all approved templates, comparison pieces and/or other measuring devices as applied and measured by the Track Officials. Once a car has passed inspection at an Event, the car must not be altered in any manner that in the judgment of Track Officials enhances the aerodynamic performance of the car. The decision of the Track Officials will be final. The templates that are currently available for track use are: front to rear template from the bottom of the windshield back to the rear spoiler, side to side roof template that extends four (4) inches down toward the quarter windows on each side (used where the roof meets the back glass), front nose templates and a quarter panel template that fits the quarter panel above the center of the rear axle and forward 17 inches to below the center of the quarter window.

III. GENERAL ENGINE REQUIREMENTS

4.1 General Engine Eligibility: The eligible engines must be production engines as determined, selected, and approved by ORANGE COUNTY SPEEDWAY. It is mandatory that all major components (engine blocks, heads, etc.) be produced by the manufacturer for sale to the public in a regular product offering. Prior to being used in competition, all major engine and component parts must be submitted to the office of the ORANGE COUNTY SPEEDWAY Competition Administrator on or prior to September 1st of the preceding season for consideration of approval and thereafter approved by ORANGE COUNTY SPEEDWAY. Each such part may thereafter be used until it is determined that such part is no longer eligible. Only engines of a type approved by ORANGE COUNTY SPEEDWAY will be permitted. Engines may be interchanged within any corporate manufacturer's line.

4.2 General Engine Characteristics: The following characteristics of the production engine must be maintained in any engine used in competition in a manner acceptable to Track Officials. All parts listed below must originate from stock production castings and forgings that have been machined according to the normal machining schedule utilized for standard production parts. All parts, except spark plugs should utilize fractional English measurement system fasteners and dimensions (non-metric). Coatings will not be permitted on any internal engine components, except rod and main bearings and camshaft bearings, including but not limited to ceramic or Teflon.

A. ENGINE BLOCK:

Material - Only cast iron engine blocks will be permitted. Aluminum or compacted graphite engine blocks will not be permitted.

Number of Cylinders

Angle of Cylinders

Cylinder Bore Centerline Spacing

Number of Main Bearings and Type Integral or Separate Cylinder Sleeves Location of Camshaft

Overall Configuration

B. CYLINDER HEAD:

Material

Number of Valves per Cylinder

Type of Combustion Chamber

Location of Spark Plug

Orientation of Spark Plug

Arrangement of Valves

Valve Location in Relation to the Cylinder Bore

Angle of Valves

Type of Valve Actuation

Number of Intake Ports

Number of Exhaust Ports

Center Distances of Intake Ports Referenced to the Cylinder Bore

Center Distances of Exhaust Ports Referenced to the Cylinder Bore

Shape of Intake and Exhaust Ports at Mating Faces of Manifolds

Angle of Port Face Relative to Mating Face of Head to Block

Firing Order

DETAILED ENGINE REQUIREMENTS: Changes from the approved standard production automobiles or component parts will not be permitted except as specified in the following rules for engine preparation. In addition to the General Engine Requirements specified in sub-section 4, the engines must also conform to the following Detailed Engine Requirements.

5.1 Engine Location

A. All General Motors engines must be located so the center of the forward most spark plug hole on the right side of the engine block is in line or a maximum of one (1) inch forward of the center of the right front upper ball joint. The Ford and Dodge engines must be located so that the front of the cylinder head on the right side is in line or a maximum of one (1) inch forward of the center of the right front upper ball joint.

B. The center of the crankshaft must be on the centerline of the frame, front sub-frame, and tread width, front and rear.

5.2 Engine Ground Clearance: The engine ground clearance will be measured (with the driver) from center of crankshaft at the water pump belt pulley. A minimum of 12 inches and a maximum of 13 inches from center of crankshaft to ground must be maintained at all times.

5.3 Engine Mounts: All engine mounts must be acceptable to Track Officials and meet the following minimum requirements:

A. All engine mounts must be reinforced steel or aluminum.

B. All engine mounts must be securely bolted. Adjustable engine mounts will not be permitted.

5.4 Engine Displacement: The cubic inch displacement will be as follows:

A. Dodge: 360 cubic inch displacement plus a maximum of 0.035 inch overbore per cylinder. The 355 cubic inch displacement Dodge engines will not be permitted.

B. Ford: 351 cubic inch displacement plus a maximum of 0.045 inch overbore per cylinder.

C. General Motors: 350 cubic inch displacement plus a maximum of 0.045 inch overbore per cylinder.

D. The manufacturer's stock bore and stroke dimensions for the approved engines are listed as follows:

MANUFACTURER BORE STROKE

Dodge 4 inches 3.580 inches

Ford 4 inches 3.500 inches

General Motors 4 inches 3.480 inches

E. The formula for determining cubic inch displacement is as follows: Bore x Bore x .7854 x Stroke equals cubic inch displacement of each cylinder. The cubic inch displacement of each cylinder added together will determine the total cubic inch displacement of the engine. Unless otherwise permitted by Track Officials, a maximum cooling down time of two (2) hours from the official completion time of the race will be permitted prior to measuring the total cubic inch displacement.

5.5 Engine Blocks: All engine blocks must be acceptable to Track Officials and meet the minimum requirements that follow.

5.5.1 Eligibility

A. All engine blocks must be a product of the manufacturer of the make of the approved engine being used in competition. Aftermarket engine blocks will not be permitted.

B. The engine block must retain all standard external dimensions with the exception of the maximum allowable overbore and the surfacing of the engine block deck. Angle cutting of the engine block deck will not be permitted.

C. Track Officials may use an engine block provided by the respective manufacturer as a guide in determining whether a Competitor's engine block conforms to the specifications of the Rule Book.

D. Aluminum engine blocks will not be permitted.

5.5.2 Internal Changes: Internal polishing of the engine block will not be permitted. Deburring of casting flash from the engine block will be permitted.

5.5.3 Pistons & Rods

A. Any flat top three (3) ring round aluminum piston with three (3) rings in place will be permitted. Minimum compression ring nominal width is 0.043 inch and minimum oil ring width is 3mm (0.118 inch). Valve reliefs for valve clearance only may be cut into the pistons. The piston must not protrude above the top of the engine block surface.

B. Only magnetic steel piston pins maintaining a minimum diameter of 0.927 inch will be permitted.

C. Piston pin holes must be in a fixed location in the piston and connecting rods.

D. Only two-piece insert style connecting rod bearings will be permitted. Roller bearings will not be permitted.

E. Only solid magnetic steel connecting rods will be permitted. Hollow beam connecting rods will not be permitted. All rods must maintain the minimum/maximum rod lengths listed below:

MANUFACTURER MINIMUM MAXIMUM

Dodge 6.000 6.250

Ford "Cleveland" 5.778 6.250

General Motors 5.700 6.250

F. Titanium and stainless steel connecting rods will not be permitted.

G. Connecting rods must be machined to normal machining schedule utilized for standard production parts.

Piston guided rods will not be permitted. Spacers or shims will not be permitted between the piston boss and the connecting rod. The maximum side clearance between the connecting rods will be 0.035 inch.

5.5.4 Oil Pans & Oil Coolers: The oil pans and oil coolers must be acceptable to Track Officials and meet the requirements that follow:

A. Oil pans must be made of magnetic steel.

B. The oil pans must be a wet sump type and manufactured using a stock production type pan with only a sump reservoir added to the bottom. All bolt holes and bolt hole flanges must be visible. Kick-outs will not be permitted between the bolt on flange and the top of the added sump. Spacers, other than sealing gaskets, will not be permitted between the oil pan side rails and the engine block surface.

C. Engine oil coolers may be either an oil to air or an oil to water heat exchanger mounted forward of the engine firewall. Air ducts will not be permitted to extend rearward beyond the center of the spindle. All oil cooler installation must be acceptable to Track Officials.

5.6 Cylinder Head: All cylinder heads must be approved and all modifications must be submitted to ORANGE COUNTY SPEEDWAY before any proposed modifications will be eligible for approval. Approved manufacturers' identification and part numbers must remain unaltered on the cylinder heads being used in competition. Track Officials may use a cylinder head provided by the respective manufacturer as a guide in determining whether a Competitor's cylinder head conforms to the specifications of the Rule Book.

5.6.1 Eligibility: To be eligible, the cylinder heads must be acceptable to Track Officials and meet the following requirements:

A. Cylinder heads must be stock cast iron production only and approved by ORANGE COUNTY SPEEDWAY, and are limited to two (2) valves per cylinder.

B. Titanium valves or valve springs will not be permitted. Only magnetic steel valve springs will be permitted.

C. Port matching or flow work will not be permitted.

D. Angle cutting of the cylinder head to the engine block mating surface will not be permitted.

E. The cylinder head stud or bolt holes must not be offset or drilled off center for the purpose of moving the cylinder head in any direction.

F. "0" rings will not be permitted for sealing the cylinder head to the engine block.

G. A maximum of three (3) valve seat angles plus the bowl cut will be permitted. When cutting the valve seat angles, stone or grinding marks will not be permitted above the bottom of the valve guide. All cutting in reference to the valve job and bowl area must be centered off the centerline of the valve guide. Radius cuts will not be permitted. Upon completion of the valve job, the bowl area above the valve seat to the bottom of the valve guide must still be the same configuration as far as shape and finish as it was from the manufacturer. Surfaces and/or edges where the cutler or stone has touched must not be polished. Hand grinding or polishing will not be permitted on any part of the head. When replacement valve guide bushings are installed the valve guide boss must retain the same shape and configuration as it was from the manufacturer.

H. Only Chevrolet (current design), part number 10134392, casting number 14011034, and part number/casting number 12480034 cast iron cylinder heads with a 23 degree valve angle will be permitted in General Motors models. Only Dodge-Mopar W2 (current design), part number P5249769, casting number 4532693, closed chamber with an 18 degree valve angle cast iron cylinder heads will be permitted in the Dodge models. Only Ford, part number M-6049-N351, cast iron cylinder heads with a 10 degree valve angle will be permitted in the Ford models.

I. All valves must be identical in appearance and construction as an OEM type valve. Air directional devices will not be permitted on any of the valve surfaces. The valve stems must have a minimum diameter of 11/32 inch. The valve stem diameter may be undercut to a minimum diameter of 0.302 inch in the area of the valve stem from the head of the valve to the bottom of the valve guide. Hollow valve stems will not be permitted. The maximum valve sizes as measured across the face of the valve are as follows:

Dodge Intake - 2.020 Exhaust - 1 .625

Ford Intake - 2.020 Exhaust - 1.600
Ford Cleveland Intake - 2.046 Exhaust - 1.656
Ford Windsor Intake - 1.8437 Exhaust - 1.5469
Ford M-6049-N351 Intake- 2.020 Exhaust - 1.600
General Motors Intake - 2.020 Exhaust - 1.625

5.6.2 External Changes: External modifications will not be permitted. All cylinder heads are limited to a minimum

62cc combustion chamber for each cylinder. The combustion chamber may be machine cut, on the walls beside the valves only, to equalize the chamber cc. Any other machining or grinding will not be permitted.

5.6.3 Internal Changes: Internal polishing, porting and/or any other internal modifications will not be permitted.

5.7 Crankshaft / Harmonic Balancer: The crankshaft and harmonic balancer must be acceptable to Track Officials and meet the following requirements:

A. Only standard magnetic steel or cast iron production design crankshafts will be permitted. If aftermarket crankshafts are used, they must be designed and manufactured the same as an OEM crankshaft for the approved standard production engine. Stroke must not be increased or decreased. Balancing will be permitted.

B. Only two-piece insert style crankshaft bearings will be permitted. Roller bearings will not be permitted.

C. Counterweights must be the same shape, may be polished, but they must not be knife-edged, undercut, or drilled to lighten the crankshaft. The rod bearing journals may be drilled. The main bearing journals must not be drilled. When weighing crankshafts, the minimum weights listed below shall include the timing chain sprocket. The following dimensions are the minimum specifications for all crankshafts:

Manufacturer Main Journal Rod Journal Weight

Dodge 2.500 minus 0.030 2.100 minus 0.030 50 Pounds

Ford 2.750 minus 0.030 2.100 minus 0.030 50 Pounds

General Motors 2.450 minus 0.030 2.100 minus 0.030 50 Pounds

D. Only standard OEM magnetic steel elastomer type harmonic balancers will be permitted.

E. Electronic switching devices or sensors will not be permitted on the harmonic balancer, crankshaft, or flywheel.

5.8 Camshaft I Valve Lifters / Rocker Arms

5.8.1 Camshaft

A. Only magnetic steel camshafts will be permitted. The maximum camshaft bearing journal size must not be more than 2.362 inches (60mm).

B. Only standard production design timing chains will be permitted. Belt drive and gear drive systems will not be permitted.

C. Only standard production sleeve type cam bearings will be permitted and must be the standard diameter for the production block being used. Needle or roller bearings will not be permitted.

D. Camshafts must be driven in the same direction of rotation as the approved standard production engine. The camshaft must maintain the same firing order as the ORANGE COUNTY SPEEDWAY-approved production engine. The approved firing orders using approved cylinder identification are as follows:

Dodge 1-8-4-3-6-5-7-2 Ford 1-3-7-2-6-5-4-8 General Motors 1-8-4-3-6-5-7-2

E. The manufacturer's cylinder identification sequence is as follows:

Dodge and General Motors Ford

(Front) (Front)

1 2 5 1

3 4 6 2

5 6 7 3

7 8 8 4

F. The front engine cover material must be acceptable to Track Officials.

5.8.2 Valve Lifters

A. Only solid magnetic steel or magnetic steel hydraulic valve lifters will be permitted. Roller tappets, ceramic valve lifters, mushroom valve lifters and any type of mechanical assistance exerting a force to assist in closing the valve and/or push rod, commonly known as rev-kits will not be permitted.

B. Only flat tappet straight barrel lifters will be permitted. Lifters must be the same diameter and length as the original equipment for the approved standard production engine.

C. Only magnetic steel one-piece, pressed together valve pushrods, without any moving parts, will be permitted.

D. The standard production design push rod guide plates will be the only guide plates permitted.

5.8.3 Rocker Arms / Valve Covers

A. Only steel or aluminum rocker arms, one (1) per valve, that are acceptable to Track Officials may be used.

B. Roller rocker arms will be permitted. Rocker arms for all General Motors and Ford cars must be an independent single stud type. Dual shaft rocker arms will not be permitted. Offset rocker arms will not be permitted with the exception of the Ford part number M-6049-N351, and the Dodge part number P5249769 cylinder heads intake valve only. Stud girdles will be permitted. All Dodge model engines may mill the existing rocker arm single shaft support towers down and install a mounting plate that permits the rocker arms for a single cylinder to be mounted from the top for easy removal. All aftermarket rocker arm assemblies must be acceptable to Track Officials.

C. Valve covers must be made of steel or aluminum. Magnesium and other exotic materials will not be permitted.

5.9 Intake Manifold

A. The intake manifold must be approved by ORANGE COUNTY SPEEDWAY. The approved manufacturers' identification in the form of cast-in part numbers must remain unaltered on the intake manifold.

B. Track Officials may use an intake manifold provided by the respective manufacturer as a guide in determining whether a Competitor's intake manifold conforms to the specifications of the Rule Book.

C. Listed below are the only eligible intake manifolds for Late Model Stock Car Division competition. These intake manifolds must remain as manufactured. Port matching or flow work will not be permitted. Intake manifolds must not be painted or coated. Only one (1) standard flat gasket, a maximum compressed thickness of 0.075 inch, may be used between the cylinder head and the intake manifold. All Edelbrock part numbers are current design Edelbrock Performer Series Intake Manifolds. Older design intake manifolds with the same part numbers will not be permitted.

(1) Chevrolet: Edelbrock - Part Number 2101.

(2) Dodge: Mopar - Part Number P5249572AB (this number appears on the intake manifold and is to be used to order this part). This intake manifold must be used with a 9.200 inch deck height engine block.

(3) Ford: Ford Performer Intake Manifold - Part Number M-9424-C358 or Ford Cleveland 4BL heads Part Number 2665, 2BL heads Part Number 2750

(4) Chrysler Part Number 2176

(5) Windsor Part Number 2181

(6) GM Vortec Part Number 2116

D. The intake manifold material must be aluminum. Magnesium or other exotic materials will not be permitted.

Carburetor: The carburetor must be ORANGE COUNTY SPEEDWAY-approved. Track Officials may use a carburetor provided by the respective manufacturer as a guide in determining whether a Competitor's carburetor conforms to the specifications of the Rule Book.

5.10.1 Eligibility: The ORANGE COUNTY SPEEDWAY-approved two (2) barrel carburetor and carburetor rework guidelines are listed below as well as other acceptable carburetors.

A. ORANGE COUNTY SPEEDWAY has approved the Holley 500 CFM-HP two (2) barrel carburetor, part number 80583-1 for use on the GM ZZ4 crate motor and the GM 604 crate motor (See B. below for Holley carburetor rework guidelines.) The Holley 350 CFM-HP 2300 Series and HP version Model Number 7448 two (2) barrel carburetor is the only approved carburetor for use on Late Model Stock built engines (angle plug, straight plug, and vortec head motors.) See C. below for Holley 2300 rework guidelines. The Holley 4150 390 CFM four (4) barrel carburetor is approved for use on the GM ZZ4 crate engine only (See D. below for Holley 390 rework guidelines) The venturis must maintain a round (circular) cross section. Only Holley replacement or service parts can be used in any carburetor rework. Carburetors and/or carburetor components machined from billet materials will not be permitted.

B. Holley 500 CFM-HP two (2) barrel Carburetor Rework Guidelines:

(1) Carburetor Main Body: Reshaping, polishing, grinding, drilling of additional holes or plugging of holes will not be permitted. Screw in air bleed jets of different hole sizes will be permitted for the 500 CFM-HP main body. For the Holley 500 CFM-HP main body, the number of holes and passages must remain as manufactured.

(2) The choke may be removed, but all screw holes must be permanently sealed.

(3) Choke Horn: Choke horn must not be removed.

(4) Carburetor Boosters: The boosters may be changed but must be of the same type. Size or shape must not be altered. The fuel supply passage inside the booster must not be changed. The booster feed hole (fuel supply hole) size may be changed. The booster casting ring must be visible and remain as manufactured. Height and

location of the boosters must remain as manufactured. Each carburetor booster must be secured by a small amount of epoxy and a steel wire not less than 0.025 inch in diameter. The wire must be installed in such a manner that in the case of a carburetor booster failure, the carburetor booster should remain suspended in the carburetor without any interference to the operation of the throttle shaft and the throttle plates (butterflies). A minimum size hole, acceptable to Track Officials, must be drilled through the top of the booster barrel, inboard of the booster attaching stem and in the top of the choke horn on each side of the vent tube. The 0.025 inch diameter steel wire must loop through the hole in the booster barrel and then be tied to the holes in the choke horn. As an alternative to drilling a hole in the booster, the 0.025 inch diameter steel wire must pass through the booster barrel from top to bottom and then be tied to the holes in the choke horn.

(5) Carburetor Venturi: The venturi area must not be altered or reshaped in any manner. The venturi must maintain a circular (round) cross section. The casting ring must not be removed. The location of the venturi must remain as produced by the manufacturer.

(6) Alterations that, in the judgment of Track Officials, were made to allow additional air to be picked up below the opening of the venturi such as altered gaskets, base plates, and drilling holes into the carburetor will not be permitted.

(7) Carburetor Throttle Body (base plate): The carburetor throttle body must be used as provided by the manufacturer. The positioning of the throttle bores in the carburetor throttle body must be the same as provided by the manufacturer. The throttle bores must be completely round. The throttle bores must be straight without taper from top to bottom. The throttle bores must remain perpendicular to the top and bottom of the carburetor throttle body. The throttle body (base plate) must not be altered in shape or size. All vacuum holes must be threaded and plugged or sealed and must be acceptable to Track Officials. Idle transfer slots must remain as manufactured.

(8) Throttle Plates (butterflies): Stock throttle plates (butterflies) must not be thinned or tapered. Idle holes may be drilled in butterflies. Screw ends may be cut even with the shafts, but the screw heads must remain standard.

(9) Throttle Shafts: Throttle shafts must remain stock and must not be thinned or cut in any manner. Welding of the lever to the throttle shaft will be permitted.

(10) Carburetor Metering Blocks: Only Holley 500 CFM-HP metering blocks (part number 12201) will be permitted. For the Holley 500 CFM-HP-approved metering block, the number of holes and passages and the location must remain as manufactured. Additional holes or passages or plugging of holes or passages will not be permitted in the Holley 500 CFM-HP-approved metering block. Existing hole sizes may be enlarged but must not be reduced in size in any way, and must not be plugged. When existing hole sizes are drilled beyond a desired size a bushing may be installed in the existing hole and re-drilled but must not be smaller than original size.

(11) Accelerator Pump: Accelerator discharge nozzles of any hole size will be permitted but must be of the same type. Only Holley replacement parts may be used. The retaining screw must not be drilled for a discharge passage. The accelerator pump cam may be changed but the pump diaphragm must remain a 30 CC pump and remain as manufactured without any changes inside the pump body. Additional diaphragms will not be permitted. A hole may be drilled in the accelerator pump fuel passage on the float bowl side of the metering block above the fuel level to relieve any siphoning through the nozzles. The hole must not be larger than .050 inch diameter.

(12) Power Valves and Floats: Power valves and floats may be changed. Only Holley replacement parts may be used.

C. Holley 350 CFM-HP two (2) barrel Carburetor Rework Guidelines:

(1) No polishing, grinding or drilling holes will be permitted in the body of the carburetor.

(2) Choke may be removed and all holes must be permanently sealed.

(3) Choke horn may not be removed and/or altered.

(4) Boosters may not be altered in any manner including size, shape or height.

(5) Venturi area must not be altered in any manner. Casting ring must not be removed.

(6) Base plate must not be altered in shape or size.

(7) Stock butterflies must not be thinned or tapered. Idle holes may be drilled in butterflies. Screw ends may be cut even with shafts, but screw heads must remain standard.

(8) Throttle shafts must remain standard and must not be cut or thinned in any manner.

(9) Any attempt to pull outside air other than through the venturi is not permitted

(10) Venturi Size of 1 3/16 inch maintaining throttle bore max size of 1 1/2 inches

D. Holley 4150 390 CFM four (4) barrel Carburetor Rework Guidelines:

- (1) No modifications: must be stock out of box. The only alterations permitted are: The power valve size may be changed, and the jets may be changed
- (2) All air leaks must be sealed.
- (3) The bottom of the air filter housing must be lower or equal to the top of the carburetor vent tubes.
- (4) No spacer plate allowed. Carburetor must be bolted directly to the intake manifold.
- (5) No spacer between air cleaner base and carburetor.
- (6) Both spray pumps must be operational.

5.10.2 Carburetor Spacer (Holley 500 CFM and 350 CFM Carburetors Only) / Gaskets

- A. Only a one-piece, solid, aluminum carburetor spacer, a minimum 0.700 inch, maximum 0.750 inch in thickness, must be installed between intake manifold and carburetor.
- B. The spacer must be centered on the intake manifold and have two (2) round holes with 1-11/16 inch diameter openings for the 500 CFM-HP and 1-1/2 inch diameter opening for the 350 CFM-HP carburetor located in the center that match the base of the carburetor. Holes must be cut perpendicular with the base of the carburetor. Taper, bevels, or any modifications will not be permitted.
- C. A one-piece, two (2) hole paper gasket, maximum 0.065 inch thickness that matches the exterior dimensions of the carburetor throttle base plate, must be installed between the carburetor and spacer. A one-piece paper gasket maximum 0.065 inch thickness must be installed between the spacer and intake manifold. The gasket must not be larger than the top of the intake manifold.

5.10.3 Carburetor Jets: Carburetor jets may be changed but must be the same type as supplied by the carburetor manufacturer.

5.10.4 Carburetor Restrictor: A carburetor restrictor must be used when required by Track Officials.

5.10.5 Carburetor Fuel Filter: Only one (1) fuel cartridge type filter may be used between the fuel cell and the fuel pump. The fuel filter on the pressure side of the fuel pump may only be used at the carburetor fuel bowl inlet. The location and size of the filter must be acceptable to Track Officials.

5.10.6 Fuel Injection / Superchargers: Fuel injection, superchargers, and turbochargers will not be permitted.

5.10.7 Carburetor Air Filter / Air Intake: The air filter housing, including the filter, must not be removed during practice or competition. Performance enhancing additives or chemicals will not be permitted in the air filter housing, air filter, or the air intake area.

5.10.8 Carburetor Air Filter / Air Filter Housing

- A. Only a round dry type paper air filter element maintaining a minimum of 12 inches and a maximum of 14 inches in diameter will be permitted. The air filter element must maintain a minimum of 1-1/2 inches and a maximum four (4) inches in height. All air must be filtered through the air filter element. The air filter elements must not be sprayed or soaked with any type of chemicals or liquids.
- B. Only a round, commercially manufactured, stamped or spun metal air filter housing will be permitted. Air filter housings must be acceptable to Track Officials. The top and bottom of the air filter housing must be solid and must be the same diameter. Lips or expanded edges will not be permitted. The center stud hole in the top of the air filter housing must not be recessed more than one (1) inch. The air filter housing must be the same diameter as the air filter element. The air filter housing must be centered and set level on the carburetor. The bottom of the air filter housing must be lower than the top of the carburetor choke horn. Tubes, funnels, or any device that may control the flow of air will not be permitted inside of the air filter or between the air filter housing and the carburetor.

5.10.9 Air Intake: Cowl air induction will not be permitted. Ducts, baffles, or air dividers will not be permitted on or leading to the air cleaner or element. Fresh air openings of any type will not be permitted in the hood or cowl area

5.11 Crate Engines

A. GM part number 88958604 is approved for use in competition. Ford part number M-6007-Z351S is approved for use in competition subject to track approval. Dodge crate engines will be allowed as soon as they are available and approved for use in competition. The GM crate engine may be used in Dodge bodied cars until a Dodge crate engine is approved.

B. Engines must remain stock as delivered from manufacturer, no changes. Rocker arms must be all 1.5 Harmonic balancer must be original. Timing cover must be original.

C. Claim Rule for GM crates: The event winning car, with a GM crate may be claimed by track or competitors finishing directly behind the winner in 2nd through 5th places for \$6,500 in cash for GM part number 88958603 and \$7,500 in cash for GM part number 88958604. Any claimed motor must be run in the next event in the car

of the driver/car claiming it. The claimed parts include: from the balancer to flywheel, intake to oil pan and the distributor.

ENGINE / CAR ELECTRICAL SYSTEM: All ignition systems must be approved by ORANGE COUNTY SPEEDWAY and be acceptable to Track Officials.

6.1 Ignition System

A. Electronic distributors will be permitted. All electronic distributors must be stock type housings, equipped with a magnetic pickup, gear driven, and mounted in the stock location.

B. Single or dual point camshaft driven distributors will be permitted.

C. Only one (1) ignition coil will be permitted and it must be mounted on the engine side of the firewall or inside the car on the ignition system mounting plate.

D. Only one (1) ignition amplifier box will be permitted (if used), and it must be mounted on the right hand side on the front of the dash panel. Ignition amplifier boxes and RPM limiters that are analog only which do not contain programmable, computerized, or memory circuits will be permitted in standard ignition systems.

E. Computerized, multi coil, dual ignition amplifier box, or crank trigger systems will not be permitted. Magnetos will not be permitted.

F. Adjustable timing controls will not be permitted.

G. Retard or ignition delay devices will not be permitted.

H. External RPM limiters will not be permitted unless an ignition amplifier box is not used. If used, the external RPM limiter must be analog only.

I. Accessories to regulate the power supply will not be permitted.

J. The ignition amplifier box must have a six (6) pin female connector attached to its output leads of the Packard Electric type (MSO part #8170) to facilitate manual operation and testing of the ignition components during inspection. The wiring sequence must be the same as the General Motors or Ford ignition amplifier.

K. A heavy red wire (positive to the battery) and a heavy black wire (negative to the ground) will be permitted. Any other wires will not be permitted to enter or exit the amplifier box.

L. All ignition wiring harnesses, switches, and connectors must be acceptable to Track Officials. All wiring must be point-to-point and each wiring connection must be easily traceable and removable from the car for inspection purposes. Ignition system wiring should remain visible and accessible. Taping wires together, heat shrink wrap, and/or banded wire looms should not be used. Terminated wiring must be sealed to prevent connection.

M. Track Officials may at their discretion inspect, test, and/or destructively test ignition system components including ignition amplifier boxes, tachometers, distributors, etc.

N. AU connectors must allow for the application of a sealing device applied by Track Officials.

O. Modifications to ignition amplifier boxes will not be permitted. Track Officials may use ignition amplifier boxes provided by the respective manufacturer as a guide in determining whether or not modifications have been made.

6.1.1 Interrupt Switch

A. An optional auxiliary on/off button that will shut off the ignition system should be mounted on the steering wheel within reach of the driver's thumb when the hands are in the normal driving position. The auxiliary switch must shut off the engine immediately when depressed and the engine must not restart until the button is depressed again.

B. A TRACK OFFICIALS-approved ignition interrupt system which contains a manifold vacuum switch and a brake line pressure switch (and may include a brake pedal position switch) may be used at the driver's option, in conjunction with or to replace the auxiliary on/off button on the steering wheel.

C. The button/interrupter should be mounted inline of the red 16-18 gage power between the main ignition switch and the primary/backup switch. When the button/interrupter is engaged, the ignition amplifier box must automatically shut off. If the ignition amplifier box is originally equipped with a single, white points trigger wire, this wire may be used with an interrupt switch/system.

D. The button/interrupter must use a connector of the Packard Electric type (MSD part #8173), or TRACK OFFICIALS-approved equivalent, to facilitate testing of the ignition system during inspection.

E. Unless otherwise authorized by Track Officials or TRACK OFFICIALS, switches and/or any device other than those described above that are designed to interrupt the operation of the engine will not be permitted.

6.2 Spark Plugs: Any make or brand of spark plugs may be used. All spark plugs must thread into the cylinder heads using only M14 x 1.24 threads.

6.3 Alternator: The alternator system when used must be mounted on the front of the engine in the standard location and must not exceed 14.9 volts of output. A single alternator system with an internal voltage regulator and one (1) output wire must be used.

6.4 Starter: The self-starter must be in working order and in the stock location. Only standard factory OEM type production starters will be permitted. After the race is underway, cars may be started by hand pushing in the pit area only but under no circumstances is any car permitted to be pushed onto the race track from the pit area.

6.5 Battery: The battery must be installed in an enclosed battery box, complete with a cover, located behind the front spindle in front of the firewall or in front of the rear axle housing behind the rear firewall. The battery box must be mounted inside the outside edge of the frame rails and must not extend below the bottom of the frame rail. The battery mounting position must be acceptable to Track Officials. Any battery that would be installed during the race must be installed in the battery box. Only one (1) standard automotive 12 volt battery, not to exceed 13.5 volts, will be permitted. Accessories to regulate the power supply will not be permitted.

6.6 Electrical Switch Locations: All electrical switches must be operable and must be located within reach of the driver, but not in the left side door area, except the labeled on/off rotary type master switch with "on" being in the clockwise direction, which must be located at or on the front of the dash panel in the center. The on/off switch must be wired to the battery cable in a manner that would cut off all electrical power in the car. Only one switch mounted on the dash panel and labeled "brake cooling fans" and "on/off" may be used to operate the brake cooling fans.

6.7 Accessories

A. Except as provided below, cars and drivers will not be permitted to carry onboard computers, automated electronic recording devices, electronically actuated devices, micro-controllers, processors, recording devices, electronic memory chips, traction control devices, digital readout gauges and the like, even if inoperable or incomplete. Competitors will not be permitted to have or have had on his/her person or in his/her possession or in his/her car a device(s) at an Event designed specifically to enhance the traction capabilities of the car, even if inoperable or incomplete.

B. Radios must be of two-way voice communication type only, independent of the car's electrical system. Only one (1) radio and one (1) radio push to talk button will be permitted in the car for audio communications only. The in-car radio must be analog only and must not be capable of transmitting or receiving in a digitized, encrypted or scrambled format. Keypad style and/or password protected radios will not be permitted. Scanning and/or channel hopping transmissions to or from the in-car radio will not be permitted. All transmissions to and from the in-car radio should be in the 450.000MHz-470.000MHz range. The in-car radio is not permitted to transmit or receive any type of telemetry signal or information other than audio communications and must remain independent from any electronic system in the car.

Teams will not be permitted to rebroadcast transmissions to or from the in-car radio at anytime during an Event. It is strongly recommended that all in car radio frequencies be licensed for use by the Federal Communications Commission (FCC) and meet all applicable regulations and guidelines. Other than for broadcasting and media related purposes only, a single radio antenna, should be mounted on the exterior of the body.

C. For broadcasting and media-related purposes only, Track Officials may allow or require selected cars to compete with broadcast telemetry or other positioning and informational systems. Unless otherwise authorized or required by Track Officials, the broadcast telemetry signal from these systems will be limited to the following parameters:

- (1) RPM (inductive pickup on the secondary wire only).
- (2) Transmission gear selection.
- (3) MPH (taken from sensors on the driveshaft or rear wheel only).
- (4) Brake pedal application.
- (5) Throttle position indicator (must not be attached to the carburetor).
- (6) Camera positioning and video switching.
- (7) All camera locations and styles must be acceptable to Track Officials.
- (8) All Competitors shall cooperate with Track Officials in connection with the installation and operation of such broadcast systems.

D. Remote lap timing or speed sensing devices will not be permitted.

E. The tachometer control or reset switches must be built into the unit. Remote switches will not be permitted.

F. All electrical wiring harnesses, switches, and connectors must be acceptable to Track Officials. All wiring must be point-to-point and each wiring connection must be easily traceable and removable from the car for inspection purposes.

G. Filming devices will not be permitted to extend beyond the pitfall.

H. Water bottles must not be in the car during qualifying. Hydration systems, when used, must be installed in the same location for qualifying and the Race. The containers must be securely mounted to the chassis in a manner acceptable to Track Officials.

ENGINE COOLING SYSTEM: The engine cooling system and components must be acceptable to Track Officials and meet the minimum requirements set forth in this sub-section. Icing, freon type chemicals or refrigerants must not be used in or near the engine compartment. Additional water lines must not be added to or from the water pump or intake manifold to the cylinder heads or engine block. Portable cooling machines or devices will not be permitted.

7.1 Water Pump

A. Only aluminum or cast steel mechanical water pumps in the stock location, turning in the same direction of crankshaft rotation, will be permitted.

B. Water pump impellers may be altered.

C. Coolant flow must be in the same direction as the approved production engine.

D. Only standard production V-type or flat type V-ribbed belts and pulleys will be permitted.

7.2 Fan

A. Engine-driven fans, if used, must be operational and belt driven from the crankshaft. Free spin or clutch type fans will not be permitted.

B. Electric engine cooling fans are optional. When an electric fan is used, it must be mounted parallel to the radiator.

C. If an engine-driven fan is used, it must be a standard magnetic steel fan with a minimum of four (4) blades. Removal of the fan blades or fan belt will not be permitted. (1) The minimum diameter of the fan must not be less than 14 inches. (2) The fan blades must be a minimum of 3-1/2 inches wide. Flat fan blades will not be permitted.

D. The installation and location of the fan must be acceptable to Track Officials.

7.3 Fan Shroud & Ducts: When an electric fan is used, shrouds or panels rearward of the radiator will not be permitted. When a standard steel fan is used, the shroud must follow the entire circumference of the fan and must not extend more than one (1) inch rearward of the trailing edge of the fan blade. Flat panels or air dividers will not be permitted. Fan shrouds and ducts must not be used for down force purposes and must be acceptable to Track Officials.

7.4 Radiator

A. The radiator must remain stock appearing and remain in the standard position not to exceed two (2) inches from vertical.

B. Radiator dust or shaker screens will be permitted.

C. Radiator installation must be acceptable to Track Officials.

D. The radiator overflow tube may be located at the rear cowl area ahead of the windshield directed rearward or may be relocated to the rear of the car.

E. A rectangular shaped metal or flexible rubber and/or plastic type air box, the width of the radiator must be attached from the front of the bumper cover to the trailing edge of the radiator. Installation of air directional devices, underpans, baffles, dividers, shields or the like will not be permitted in the grille or in the ductwork back to the radiator. Any part or component of the car not previously approved by Track Officials that has been installed or modified to enhance aerodynamic performance will not be permitted. All air that enters the grille area must flow through the radiator core.

F. All radiator cooling tubes must be operational. All cooling fins must be evenly spaced top to bottom and side to side and must remain at a 90 degree angle to the side tanks. The spacing and width must be acceptable to Track Officials.

ENGINE LUBRICATION

8.1 Oil: Any oil is permissible. Combustion enhancing additives will not be permitted.

8.2 Oil Pressure: Oil pressure may be regulated at the discretion of the owner or driver.

8.3 Oil Filters: Oil filters and breather caps acceptable to Track Officials will be permitted.

8.4 Oiling System

- A. Dry sump or air over oil systems will not be permitted. During the running of the race, oil must be added from the engine compartment. External oil pumps will not be permitted.
- B. Oil drain lines will not be permitted.
- C. Inside valve cover oiling systems will not be permitted.
- D. Quick disconnect fittings will not be permitted.

ENGINE EXHAUST SYSTEM: The exhaust systems and components must be acceptable to Track Officials and meet the following minimum requirements.

9.1 Exhaust Manifold

- A Stock cast iron manifolds will be permitted. Modifications will not be permitted.
- B. Exhaust headers will be permitted. The exhaust headers must be manufactured using a magnetic steel primary tube size of 1-5/8 inches outside diameter, maximum 30 inches in length cut off square, no cones or pyramids will be permitted, with a collector tube size of three (3) inches outside diameter. The header collector pipe must not be reduced at any point between the primary tubes and the exhaust pipe. Primary tubes must exit down and turn to the rear into the collector pipe. Those tubes that do not must be mounted parallel, or angle down, in reference to the cylinder head, then

ENGINE EXHAUST SYSTEM: The exhaust systems and components must be acceptable to Track Officials and meet the following minimum requirements.

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- A Stock cast iron manifolds will be permitted. Modifications will not be permitted.
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- C. Stainless steel, stepped, 180 degree, merge, or crossover equalizer tube systems will not be permitted.
- D. Spacers will not be permitted between the cylinder head and the exhaust manifold. Only one (1) gasket, maximum 0.075 inch thickness, may be used between the cylinder head and exhaust manifold and/or header.
- E. Thermal wrap will not be permitted.
- F. Scavenge lines and/or hoses will not be permitted between the engine and exhaust system.
- G. Internal coatings will not be permitted.

9.2 Exhaust Pipes

- A. Exhaust pipes from the exhaust header collector must not be larger than four (4).inches or smaller than three (3) inches outside diameter but must be the same diameter for the entire length. Only round exhaust pipes will be permitted, but may be flattened to an oval shape a minimum of 1-1/2 inches high. The circumference must be the same as the round exhaust pipe of the same diameter. Any device to reduce the interior diameter of the exhaust pipe will not be permitted. The exhaust pipe must exit the collector pipe and turn either right or left and may join into one (1) pipe that must exit the car either beneath or on top of the frame rail. When the two (2) exhaust pipes into one (1) system is used, all exhaust pipes must be routed beneath the transmission and exit to the outside of the car, with a single pipe only, behind the driver and in front of the rear wheels. Any exhaust pipe exiting through the inside of the car must be completely sealed and not extend more than 1/2 inch outside the body or be installed in a recessed or flat panel in the right side door or quarter panel in front of the right rear tire and be acceptable to Track Officials. Frames, rocker and quarter panels must not be notched to accommodate exhaust pipes.
- B. Exhaust pipes must be made of magnetic steel, fastened to the header collector and to the frame in a secure manner acceptable to Track Officials.
- C. Thermal wrap will be permitted on the exhaust pipes under the driver compartment area only.
- D. Crossover pipes or merge systems will not be permitted.

9.3 Heat Shields: Heat shields will not be permitted.

IV. DRIVETRAIN: The drive train systems and components must be acceptable to Track Officials and meet the following minimum requirements. All drive train fasteners and mounting hardware must be made of solid magnetic steel.

10.1 Clutch

- A. Only mechanical foot pedal, cable or hydraulic operated clutches will be permitted. Pneumatic assisted clutches will not be permitted.
- B. The clutch assembly must be bolted to the flywheel located inside the bell housing.
- C. Multiple disc clutches will be permitted up to a maximum of 3 discs. The disc clutch housing assembly and cover must be made from aluminum or steel. The clutch cover must be the push type design.
- D. Only magnetic steel discs and magnetic steel pressure plates will be permitted.
- E. The minimum clutch disc diameter permitted is 5-1/2 inches.
- F. Clutches must be a positive engagement design. Slider or slipper clutch designs will not be permitted.

10.2 Flywheel

- A. Only a magnetic steel flywheel, bolted to the crankshaft, will be permitted. Holes and/or other modifications to the flywheel that, in the judgment of Track Officials, have been made with the intent of weight reduction will not be permitted.
- B. The minimum starter ring gear outside diameter permitted will be 12-7/8 inches for General Motors and Dodge models and 13-1/4 inches for Ford models.

10.3 Bell Housing

- A. Only special production all magnetic steel bell housings will be permitted.
- B. The maximum distance from the machined surface at the back of the engine block to the machined surface at the front of the transmission case must not exceed 6-3/8 inches including any spacers.
- C. Bell housings must be the same design as an OEM-type production bell housing. The bottom of the bell housing may be cut off horizontally a maximum of one (1) inch below the bottom of the transmission. Cutting on the sides of the bell housing, above this cut off line, will not be permitted.
- D. Holes and/or other modifications that, in the judgment of Track Officials, have been made with the intent of weight reduction will not be permitted.

10.4 Transmission

- A. Only standard production OEM type Muncie or T-10 manual four (4) speed transmissions will be permitted. Special production transmissions will not be permitted. Top loader type transmissions will not be permitted. Track Officials may use a transmission provided by the respective manufacturer as a guide in determining whether a Competitor's transmission conforms to the specification of the Rule Book. Only manual shift linkage using the H-pattern type will be permitted on the transmission. The shift lever must be made of metal.
- B. All forward gears and reverse gear must be in working order. Fourth gear ratio must be 1.00:1 (direct). Transmission gear ratios between 1.00:1 and 1.23:1 will not be permitted for the remaining forward transmission gears. Overdrive gears will not be permitted. Fourth gear must be the primary gear engaged on track during competition.
- C. Only cast iron, aluminum, or magnesium transmission housings will be permitted. The rear housing of the transmission may be changed but must be cast iron, aluminum, or magnesium and similar in design to the standard production OEM transmission. The side cover (shifter plate) must be the same design and operation as the standard production OEM transmission. Billet or special production side covers will not be permitted. Synchronizers must be the standard production type.
- D. Holes and/or other modifications to the transmission case or internal components that, in the judgment of Track Officials, have been made with the intent of weight reduction will not be permitted.
- E. Only OEM type, steel, angle cut forward gears manufactured for the transmission being used will be permitted. Square cut forward gears will not be permitted.
- F. Holes and/or other modifications to transmission gears, including but not limited to, narrowing of gears, that in the judgment of Track Officials, have been made with the intent of weight reduction will not be permitted.
- G. All forward gears and reverse gear must be operational from inside the driver's compartment.
- H. All transmissions must have the input shaft and its main drive gear constantly engaged. This assembly must be constantly engaged with the countershaft and its cluster and reverse gears.
- I. Five (5) speed transmission with gears removed will not be permitted.
- J. Quick change transmissions will not be permitted.
- K. Automatic or semi-automatic transmissions will not be permitted.
- L. Only fire resistant type shifter boots, secured with fasteners, acceptable to Track Officials will be permitted. The shifter boots should meet the SFI 48.1 specification and display a valid SFI 48.1 label visible on the outside surface of the shifter boot. Quick release fasteners should not be used to secure the shifter boot. The shifter

boot, when installed, should be completely sealed to the floor of the car. Installation of the shifter boot must be acceptable to Track Officials.

M. External oil pumps and oil coolers will not be permitted.

N. Heating pads and/or blankets will not be permitted for warming the transmission.

10.5 Drive Shaft

A. The drive shaft, universal joints, and yokes must be magnetic steel and be similar in design to the standard production type. The drive shaft must be made of one-piece magnetic steel and must be either 2-3/4 inches or 3 inches in diameter.

B. Two (2) 360 degree solid magnetic steel brackets, with no holes or slots, not less than two (2) inches wide and 1/4 inch thick, must be placed around the drive shaft. The front bracket must be welded to the rear suspension cross member and the rear bracket must be welded or bolted, with a minimum of two (2) minimum 3/8 inch diameter bolts on each side, to the horizontal tunnel bar (#6).

C. All drive shafts must be painted white.

10.6 Rear Axle

A. The center of the rear end housing must be within 1/2 inch of the centerline of the tread width, front and rear.

B. Only the following differentials will be permitted:

(1) Only Detroit locker ratchet type differentials will be permitted. When this type differential is used, either wheel, when jacked up with the transmission engaged, must turn freely by hand for one (1) full turn, 360 degrees, while the opposite wheel remains stationary.

(2) Locked rear drive axle assemblies (solid spool) will be permitted.

(3) When jacked up, both rear wheels must rotate in the same direction and the same rotational distance at all times.

C. Only quick change rear end center sections with a minimum cross section height of 12 inches at the center of the rear axle with a side bell minimum diameter of 12 inches and magnetic steel spur gears on the back side will be permitted. Only a magnetic steel lower jackshaft and driveshaft yoke will be permitted in the quick change rear end center section. All cap screws attaching the ring gear to the differential locker housing must be installed at all times during competition.

D. Full floating rear axle must be used, but must not alter the tread width or general appearance.

E. Only solid, one-piece, magnetic steel axle housings will be permitted. Bolt on spindles will be permitted.

Axle housings must not be altered and must remain as manufactured. Weight must not be added internally or externally to the axle housings or suspension parts..

F. Cambered rear axle housings will not be permitted. The method used to check camber will be the Track Officials' option.

G. Only metal drive plates, the same thickness on the left and right side, will be permitted and the drive plates must be one-piece with a single internal spline. Grease fittings will not be permitted on the drive plates or axle caps.

H. Rear axle housing support bars or alignment bars will not be permitted during competition. Alignment bar "brackets" will be permitted on the rear axle housing. These brackets will be permitted to be used for attachment of alignment bars for straightening of axle housings but the alignment bars must be removed for competition.

I. External oil pumps and oil coolers will not be permitted.

J. Heating pads and/or blankets will not be permitted for warming the rear end assembly.

K. All drive train fasteners and mounting hardware must be made of solid magnetic steel.

10.7 Wheels & Lug Bolts & Lug Nuts

A. Only 15 inch diameter five (5) lug magnetic steel wheels with a 10 inch rim width and a reinforced center will be permitted.

B. All wheels must be the same width and offset (backspacing).

C. Only solid, one-piece, heavy-duty 5/8 inch magnetic steel lug bolts and standard one (1) inch hex by minimum 5/8 inch thick, fully-threaded, solid, one-piece magnetic steel lug nuts will be permitted. The first thread on each lug bolt must be visible from the front of the lug nut when the lug nut is installed. Design modifications to the lug bolt or lug nut will not be permitted.

D. Bleeder valves will not be permitted.

E. Tape will not be permitted on the wheels.

F. Any device, modification or procedure to the tire, wheel, or valve stem hardware that, in the judgment of Track Officials, is used to release pressure (beyond normal pressure adjustments) from the tire, will not be permitted.

10.8 Tires: The following rules govern the use of approved and qualified tires:

A. Teams are required to purchase four (4) new race tires from the track at the first event of the season. At the conclusion of each event, each competitor must leave at least two (2) tires that were used in that event, at the track impound. After the first event, teams are required to purchase two (2) new race tires from the track at each of the remaining events. For competitors who did not race in the first event, teams are required to purchase two (2) new race tires and two (2) "scuff" tires from the track. "Scuff" tires will be provided and inspected by OCS track officials. All cars qualified for any Late Model Stock Car Division race may be required to start the race on the same tires used for qualifying.

B. During the running of any Late Model Select Division Race, only one (1) jack and only one (1) 1/2 inch drive air wrench with a single socket capable of removing or attaching one (1) lug at a time will be permitted. The socket must not have the capability of retaining or dispensing any lug nuts.

C. Tires that, in the judgment of Track Officials, have been altered by unauthorized treatment will not be permitted.

V. FRAMES: All frames must be acceptable to Track Officials. Any frame rejected by the Track Officials will not be approved until necessary corrections have been made. The frame used must meet the minimum requirements described in the following sub-sections.

11.1 General Frame Eligibility: All frame components must be made of magnetic steel and welded. The frame must consist of a front and rear sub-frame connected to the main frame on which the roll cage is welded. Sub-frames must not be offset from the main frame centerline. Holes and/or other modifications to the frame, frame supports, front and rear subframes, cross members, and any other frame components that, in the judgment of Track Officials, were made with the intent of weight reduction will not be permitted.

11.2 Frame Requirements

A. A tubular welded magnetic steel frame must be used except that the stock front sub frame, beginning a minimum of 22 inches rearward of the centerline of the front spindles and extending forward to in front of the radiator, must be a product of the automobile manufacturers. Front sub frames may be interchanged from one manufacturer to another (such as Ford to General Motors). The sub frame must remain stock. The only modifications permitted are for spring buckets and the bottom of the cross member may be cut for oil pan clearance. The cross member must not be moved from its original location. Offset frames will not be permitted. The main frame side rails must be parallel and be an equal distance from the centerline of the frame. The main frame side rails must be the same size (height and width), constructed using a single tube, and inserted in standard rocker panels and must be magnetic steel box tubing two (2) inches in width by three (3) inches in height and a maximum three (3) inches by four (4) inches with a minimum wall thickness of not less than 1/8 inch meeting the ASTM A-SOO specifications. Frames must not be notched to accommodate the exhaust pipes. Rocker panels must remain in the standard location. The rear sub-frame rails must be configured and attached in the same location on the left side and the right side, be parallel and be an equal distance from the centerline of the rear sub-frame. The rear sub-frame rails must angle in at 90 degrees, then turn back at 90 degrees (kick-in) from the frame side rails and must angle upward and rearward from the kick-in extending across the rear axle housing, angle down and turn to the rear of the car and must be two (2) inches in width by three (3) inches in height, with a minimum wall thickness of 0.083 inch meeting the ASTM A-SOO specifications and must be similar in design and configuration to standard automobile rear kick-ups. The rear sub-frame rails must be parallel. The rear subframe must incorporate the mounting locations for the rear springs, shocks, panhard bar, and fuel cell ending with a cross member a minimum of one (1) inch .in width by three (3) inches in height with a minimum wall thickness of 0.083 inch meeting the ASTM A-500 specifications (refer to the Construction Guidelines in the rear pages of the Rule Book). A reinforcement bar, minimum 1-1/2 inches in diameter with a minimum wall thickness of 0.083 inch, must extend below the rear frame section behind the fuel cell. This reinforcement bar must be as wide as the rear frame rails and extend as low as the bottom of the fuel cell with two (2) vertical uprights evenly spaced between the frame rails and attached to the rear cross member. Two (2) support bars, one (1) located on each corner, must angle upwards and be welded to the rear frame rails.

B. The distance from the outside edge of the main frame side rails, left and right, must be the same, measured from the centerline of the tread width, front and rear. When measured from the outside edge of the left side frame rail to the outside edge of the right side frame rail, a minimum width of 57 inches and a maximum width of 64 inches must be maintained on all frames. Weight containers must not be added on the outside of the frame rails. Weight containers, if used, must only be attached to the inside of the main frame rails and must not be lower than the bottom of the frame rails. Center mounted weight containers will be permitted but must be

securely welded in place and must be acceptable to Track Officials. (See diagrams in the rear of the Rule Book for approved frames.)

(1) Front Sub-Frame - The connecting rails must be constructed using minimum two (2) inches or three (3) inches wide by maximum four (4) inches high rectangular box tubing with a wall thickness of 1/8 inch meeting ASTM A-500 specification. The mounting location of the connecting rails must match on the left and right side. The measurement from the front of the front connecting rails to the rear of the rear connecting rails must be the same on the left side and the right side and be in the same location from side to side and front to rear. Optional right and left side front frame extensions may be welded or bolted to the front sub-frame forward side rails. If bolted, the frame extensions must be attached using a minimum of 3/8 inch diameter bolts in a manner acceptable to Track Officials.

C. An optional tubular front sub-frame may be used on any model car, but must be constructed by the following guidelines:

(1) A GM type front steer tubular front sub-frame must be constructed using two (2) inch wide by four (4) inch high magnetic steel tubing with a wall thickness of 0.083 inch meeting the ASTM A-SOO specifications. All front steer assemblies must maintain a dimension of 32 inches from the center of the left side frame rail to the center of the right side frame rail at any point from the frame side rail kick outs extending forward in front of the steering assembly. The front frame extensions using two (2) inch wide by three (3) inch high with a minimum wall thickness of 0.083 inch magnetic steel tubing meeting the ASTM A-SOD specifications may be welded to the end of the sub-frame but should angle down a maximum of 18 degrees. The front sub-frame must be attached in the center of the frame at the frame side rail kick-outs and extend forward a length of 16 inches on one (1) side with the opposite side not more than one (1) inch difference and angle upward .at between 22 and 25 degrees. At this point, a piece of tubing, a minimum of 27 inches long and a maximum of 29 inches long, must be welded and extend straight forward in front of the steering assembly. A distance of 2S inches must be maintained from the leading edge of the kick-out to the centerline of the front cross member. The sub-frame cross member must be mounted at the centerline of the front sub-frame at a 90 degree angle and must be constructed using two (2) inch high by three (3) inch wide magnetic steel tubing with a minimum wall thickness of 0.083 inch meeting the ASTM A-SOO specifications. It is permissible to install a cross member center section using three (3) pieces of one (1) inch by one (1) inch with a minimum wall thickness of 0.120 inch magnetic steel tubing welded together with a 3/8 inch magnetic steel plate welded to each end. A 3/8 inch steel plate must be welded to each end of the cross member. A minimum of four (4) 3/8 inch diameter bolt holes (two (2) on each end) must be drilled for attaching the cross member together. This will permit easy removal of the engine oil pan. A cross member center section made of 1/2 inch thick by three (3) inches wide magnetic steel plate welded to the left and right of the front cross member, and supported by 1/4 inch thick by two (2) inches wide magnetic steel plate, may be installed as an alternative to the center section described above. The mounting points for the lower A-frames must be 14-1/4 inches at the rear and 8-3/4 inches on the front, measured from the centerline of the subframe to the centerline of the mounting hole. When measuring either the right or left side, the distance from the centerline of the bottom ball joint to the centerline of the sub-frame must be equal.

(2) A Ford type rear steer tubular front sub-frame must be constructed using two (2) inch wide by four (4) inch high magnetic steel tubing with a minimum waif thickness 0.083 inch meeting the ASTM A-SOD specifications. All rear steer assemblies must maintain a dimension of 32 inches from the center of the left side frame rail to the center of the right side frame rail at any point from the rear of the spring mount to the front of the sub-frame assembly. A distance of 34 inches must be maintained from the frame side rail kick-outs forward to the rear of the top spring mounting plate measured center to center. This will be done by moving the left side frame section out two (2) inches to permit mounting space for the steering box and maintaining the center to center distance of 34 inches. The front subframe assembly must be attached in the center of the frame at the frame side rail kickouts and extend upward and forward, 19-1/2 inches, to the rear of the top spring mount plate between a 22 and 25 degree angle. The top spring mounting plate shall extend forward 7-1/4 inches. A piece of tubing 21-1/2 inches long must be welded at the front of the spring mount and angle down a maximum of 18 degrees. A distance of 21-5/8 inches must be maintained from the leading edge of the kick-out to the centerline of the front cross member. The mounting points for the lower A-frames must be eight (8) inches, measured from the center of the sub-frame to the centerline of the mounting hole. Strut rods must be bolted in the stock location on the lower A-frames and extend forward and mounted on a cross member. When measuring either the right or left side, the distance from the centerline of the bottom ball joint to the centerline of the sub-frame must be equal.

(1) Rear Sub-Frame - The rear sub-frame side rails must be minimum two (2) inches in width by three (3) inches in height with a wall thickness of 0.083 inch meeting the ASTM A-500 specification. The rear sub-frame rail forward ends must be welded to left and right side connecting rails. The measurement from the front of the front connecting rails to the rear of the rear connecting rails must be the same on the left side and the right side and be in the same location from side to side and front to rear.

D. A minimum ground clearance of four (4) inches must be maintained on any part of the frame or body.

12.0 SUSPENSION

A. All suspension systems, components, and parts must be acceptable to Track Officials. All suspension fasteners and mounting hardware must be made of magnetic steel. Unless otherwise authorized by Track Officials, non-ferrous suspension parts will not be permitted. The following minimum requirements must be met:

B. Rear Suspension Trailing Arms

(1) Only a conventional two (2) link truck trailing arm type with the same configuration on both sides or a three (3) link passenger car type suspension will be permitted. Bushings for truck trailing arms that, in the judgment of Track Officials, allow excessive vertical or horizontal movement will not be permitted.

(2) Truck trailing arms must be attached to the rear axle housing, with one (1) solid "U" bolt on each side over the axle housing and through the truck trailing arm, with nuts securing the truck trailing arm to the axle housing and to the chassis in the front with a steel or rubber bushing or monoballs, (must be the same on both sides), at the end of each truck trailing arm attached with minimum 3/4 inch diameter bolts. Truck trailing arms using heim joints (spherical rod ends) will not be permitted. The front truck trailing arm mounting brackets must be one-piece, welded magnetic steel. Hydraulic or spring loaded mounting points or links will not be permitted. Any spacers used between the rear axle housing and the truck trailing arms must be made of a magnetic steel or aluminum solid block.

(3) Mounting points on the axle housing must be evenly spaced and welded to prevent movement and must be equal distance from the centerline of the rear frame rails. Truck trailing arms when measured from the center of the front mounting bushing to the center of the rear axle tube, in a straight line, must be within 1/4 inch of equal length with a minimum length of 45 inches and a maximum length of 51 inches. Pickup truck OEM trailing arms may be cut down to a minimum two (2) inches wide by three (3) inches high.

(4) I-Beam style truck trailing arms must be used. They must be constructed using two (2) C-channels of a minimum of one (1) inch in width by three (3) inches in height magnetic steel with a minimum nominal wall thickness of 1/8 inch meeting the ASTM A-500 specifications, stitch welded back to back for the entire length, creating a vertical wall of two (2) 1/8 inch minimum wall thicknesses with a completed overall size of two (2) inches in width by three (3) inches in height. The minimum thickness of truck trailing arm material acceptable will be 0.117 inch. Box tube truck trailing arms will not be permitted. Adjustable truck trailing arms will not be permitted. Any spacers used between the rear axle housing and the truck trailing arms must be made of a solid metal block.

(5) All truck trailing arms and mounting brackets must be acceptable to Track Officials. Holes and/or other modifications to the truck trailing arms and mounting brackets that, in the judgment of Track Officials, have been made with the intent of weight reduction will not be permitted.

(6) Passenger car type trailing arms must be a maximum of 25 inches in length at the center of the mounting holes. The trailing arms must be fabricated using a minimum 1-1/4 inch by two (2) inches steel box tubing with a minimum wall thickness of 1/8 inch meeting the ASTM A-500 specifications. Both trailing arms must be the same length and be made in one (1) piece. Both trailing arms must be parallel with each other when attached to the frame and rear axle housing. Mounting points on the axle housing must be evenly spaced and welded to prevent movement and must be equal distance from the centerline of the rear frame rails. Standard type rubber or metal bushings must be used. Adjustable rear trailing arms will not be permitted. All trailing arms and mounting brackets must be acceptable to Track Officials. Holes and/or other modifications to the passenger type trailing arms that, in the judgment of Track Officials, have been made with the intent of weight reduction will not be permitted. Any other modifications, that in the judgment of Track Officials, such as but not limited to weight addition, will not be permitted.

(7) The rear axle housing must be held in the center of the car side to side by a single straight tubular panhard bar, with adjustable heim-joints (spherical rod ends) on each end, behind the rear axle connected to the frame on the right side and the rear axle housing on the left side. The panhard bar must be mounted parallel front to rear to the rear axle housing plus or minus (+/-) 1 inch. The panhard bar mounting bolt, at each end, must be 3/4 inch in diameter and must include a 1/8 inch thick magnetic steel washer with an outside diameter larger than the

body of the heim-joint (spherical rod end). Movable threaded-screw adjusters will be permitted on the panhard bar. If used the movable threaded-screw adjuster must be mounted on the frame mount side. The upper adjustment to the threaded-screw bracket (located just under the rear window) must share the same vertical centerline with the threaded-screw bracket. The panhard bar, panhard bar brackets and/or components, must not be lower than the lowest edge of the wheel (rim).

12.1 Coil Springs & Spring Mounts & Jacking Bolts: COIL BINDING WILL NOT BE PERMITTED ON ANY SPRING/COIL-OVER SPRING. ALL COILS OF THE SPRING/COIL-OVER SPRING MUST BE ACTIVE AND MUST NOT CONTACT THE ADJOINING COILS. ALL COMPETITORS MUST COMPETEWITH BODY MASKING OR CLOTH DUCT TAPE APPLIED BETWEEN EACH COIL OF THE SPRING/COIL-OVER SPRING.

All downward chassis movement while the race car is in competition must be limited only by the normal increasing stiffness of the springs or the bottoming of the chassis against the race track, whichever occurs first. Any device or procedure that in the judgment of Track Officials attempts to detract from or compromise the above will not be permitted. Only coil spring suspension will be permitted. All coil springs must be constructed using round magnetic steel wire. Ovate and flat wire will not be permitted. The coil spring wire diameter must be the same size from the top to the bottom of the springs. All of the coils in a spring must be active. The coil springs in all four (4) wheels must be active in any and all suspension movement. Any device(s) such as chains, cables, etc. that limit the travel of the suspension either up or down will not be permitted. When jacking the car, a minimum of two (2) inches of chassis movement is required before movement of the axle/tire assembly.

A. Coil Over Springs

- (1) Front coil over springs must mount to the stock appearing lower A-frames. Adjustable mounts of any type will not be permitted. The use of jacking bolts on the coil over assembly will not be permitted. Coil over spring seats, if used, must be flat nylon or flat steel washer type or top hat style only. Load centering spring perches of any type, including but not limited to hydraulic or rubber, will not be permitted. Thrust -type bearing plates will be permitted on the spring seats.
- (2) Strut bars will not be permitted for mounting of the coilovers.
- (3) Rear coil overs must be permanently mounted on the outside of the rear frame rails. Adjustable mounts of any type will not be permitted. The use of jacking bolts on the coil over assembly will not be permitted. Coil over springs, if used, must be flat nylon or flat steel washer type or top hat style only. Load centering spring perches of any type, including but not limited to hydraulic or rubber, will not be permitted. Both springs must be mounted to brackets on the rear axle housing in the same location on the left and on the right side.
- (4) Only one (1) spring per wheel will be permitted.
- (5) Coil over springs must be heavy-duty magnetic steel and must be constructed with both coil ends closed and ground.
- (6) Progressive or digressive rate springs will not be permitted.
- (7) One (1) spring rubber insert, not to exceed one (1) full coil, acceptable to Track Officials will be permitted.

B. Front Coil Springs

- (1) The front coil springs must be heavy-duty magnetic steel and must be constructed with one closed, ground coil end and one (1) open coil end. The closed end of the coil spring should not have a gap larger than 1/8 inch. Grinding of the open coil should not be permitted beyond the first inch of the open coil and should not exceed 1/2 of the coil spring wire diameter.
- (2) The front coil spring mounts must be located on the stock appearing lower A-frame for the bottom mount and the top mount must be welded to the chassis frame rails.
- (3) It is permissible to install heavy-duty bolts (jacking bolts) for the purpose of raising or lowering the car. Monoball(s), excessive taper, bevels or other devices on the end of the front jacking bolt or in the front upper spring mount will not be permitted.
- (4) Jacking bolts will not be permitted to extend through the frame rail tube.
- (5) One (1) spring rubber insert, not to exceed one (1) full coil, acceptable to Track Officials will be permitted.
- (6) All coil springs must maintain a minimum outside diameter of 5-1/4 inches and a maximum outside diameter of 5-3/4 inches.
- (7) Only one (1) spring per wheel will be permitted.
- (8) Progressive or digressive rate springs will not be permitted.
- (9) Thrust -type bearing plates with a maximum diameter of 1-1/8 inches will be permitted between the end of the jacking bolt and the face of the spring seat. The front jacking bolts must be mounted on the vertical centerline of the lower spring bucket.

C. Rear Coil Springs

- (1) The rear coil springs must be heavy-duty magnetic steel and must be constructed with both coil ends closed and ground.
- (2) Coil springs mounted on the truck trailing arms must not be located outside the rear frame rail kick-ups, and must be equal distance from the centerline of the rear frame rails.
- (3) All upper and lower rear coil spring mounts must be located between the rear frame side rails. Only one (1) rear jacking bolt frame mount per side will be permitted. Jacking bolts will be permitted to be located through the frame rails. The center of the jacking bolt must not extend further than the center of the frame rail from the inside edge. Jacking bolts located through the frame rails must have a solid sleeve extending through the frame from top to bottom and be welded completely into the frame rails. Monoball(s), excessive taper, bevels or other devices on the end of the rear jacking bolt or in the rear upper spring mount will not be permitted.
- (4) The rear coil spring lower mounts must be located in front of the rear axle housing.
- (5) The rear coil spring upper mounts must be located and welded on the chassis directly above the lower mounts.
- (6) One (1) spring rubber insert, not to exceed one (1) full coil, acceptable to Track Officials will be permitted.
- (7) All coil springs must maintain a minimum outside diameter of 4-3/4 inches and a maximum outside diameter of 5-1/4 inches.
- (8) Only one (1) spring per wheel will be permitted.
- (9) Progressive or digressive rate springs will not be permitted.
- (10) The rear jacking bolts must be mounted on the vertical centerline of the lower spring mount. Thrust type bearing plates with a maximum diameter of 1-1/8 inches will be permitted between the end of the jacking bolt and the face of the spring seat.

12.2 Sway Bars (Anti-Roll Bars): Sway bars, when used must be used for the purpose of anti-roll only.

A. The main body of the front sway bar must be one piece, made of magnetic steel and must be mounted center under the front sub-frame. The sway bar must be mounted perpendicular to the front sub-frame rails. The maximum outside diameter of the sway bar splined ends will be 1 3/4 inches. The nominal length of the sway bar will be 37 1/2 inches. The maximum inside diameter of the sway bar will be 3/4 inch for the entire length of the sway bar.

B. The sway bar arms must be constructed of metal and may be splined for attaching to the main body. Only two (2) one-piece sway bar arms, one (1) per side, may be used on the front sway bar. The minimum length of the sway bar arms will be 11 inches and the maximum length of the sway bar arms will be 16 inches. The sway bar arms may be angled or straight but must be the same length and configuration on each side. The sway bar arms must mount to the front of the lower A-frame at the same location on each side. The sway bar arms must not extend rearward of the mounting location on the front of the lower A-frame. Heim joints (spherical rod ends) may be used for attaching the sway bar arms to the lower A-frames. Quick release pins will not be permitted.

C. Sway bars (anti-roll bars) will not be permitted on the rear suspension.

D. PRE-LOADING OF THE SWAY BAR BEYOND THE LIMITS OF THE DRIVER'S WEIGHT IN THE DRIVER'S SEAT OR ON THE LEFT DOOR TOP WILL NOT BE PERMITTED.

12.3 Shock Absorbers:

No external reservoir shocks permitted. Single shock per wheel with a top and bottom mount.

12.4 A-Frames

A. A-frames must have a stock appearance and be made of magnetic tubular steel. Holes and/or other modifications that, in the judgment of Track Officials, have been made with the intent of weight reduction will not be permitted. Added weight must not be attached to the A-frames.

B. Upper and lower A-frames may be altered for tire clearance. Heim joints (spherical rod ends) will not be permitted on upper and lower A-frames.

C. Lower A-frames must have a stock appearance for the type front subframe being used and mounted in the stock location. Both A-frames must be the same length (no offsets permitted). If fabricated, the General Motors type lower A-frames must be constructed using a minimum one (1) inch wide by two (2) inches high magnetic steel tubing. If fabricated, the Ford type lower A-frames must be constructed using a minimum two (2) inches wide by one (1) inch high magnetic steel tubing.

D. The distance from the centerline of the tread width, front and rear, to the mounting points of the lower A-frames, left and right, must be the same.

E. Only one (1) non-adjustable lower A-frame mounting hole per side in the chassis or A-frame will be permitted. Vertical adjustments for lower A-frames will be permitted and do not have to be welded; left and right must be the same.

F. Offset bushings will not be permitted in the chassis or lower A-frame.

G. Ball joints must be stock appearing, heavy-duty magnetic steel construction and must be acceptable to Track Officials. The ball joints must not have any adjustment with the exception of a free play adjustment in the housing for the ball and socket.

H. The spring bucket must not be flared at the top or bottom.

12.5 Spindles & Wheel Bearings & Hubs

A. One-piece, non-adjustable, heavy-duty magnetic steel spindles must be used. Holes and/or other modifications that, in the judgment of Track Officials, are made or used with the intent of weight reduction will not be permitted.

B. Offset spindles will not be permitted.

C. Wheel bearings must be magnetic steel, tapered roller bearings and bearing races. The bearings, races and seals must be assembled separately in the hubs.

D. Solid wide five (5) pattern hubs will be permitted.

E. Front and rear hubs must have the same dimensions on the left and right side--offset hubs will not be permitted.

F. Spindle adjustment bushings will be permitted and do not have to be welded.

12.6 Tread Width Requirements

A. Magnetic steel spacers will be permitted to utilize the maximum allowable tread width. Spacers, if used, must be the same thickness left and right; however, the front and rear do not have to be the same thickness.

B. Cars must not exceed the maximum allowable tread width of 64-1/2 inches, front and rear, measured from the outside of the driver's side tire to the inside of the right side tire, zero toe-in, at spindle height. A tolerance of 1/2 inch will be permitted between the front tread width and rear tread width, but the tread width must not exceed 64-1/2 inches.

12.7 Wheelbase Requirements: All cars must compete with a wheelbase of 105 inches. The left side must be between a minimum of 104-1/2 inches and a maximum of 105-1/2 inches. The right side must be between a

minimum of 104-1/2

inches and a maximum of 105-1/2 inches.
12.8 Body Height & Ground Clearance Requirements: All measurements will be with the driver, in the car, ready to compete.

12.8.1 Body Height Requirements

A. Cars must maintain a minimum roof height of not less than 48 inches. The car height off the ground and body height, including rake or degrees of body angle, shall be determined by measuring the overall height of the car at a distance of 10 inches behind the top of the windshield on the roof centerline.

B. Competitors presenting cars for inspection of the minimum body height and the minimum ground clearance must have their tires inflated to the air pressure recommended by the participating tire manufacturer for the Event. This will apply to pre-qualifying and pre-race inspection. If tire pressure(s) fall below recommended tire pressure(s) after competition, tires will be re-inflated to the recommended inspection pressure(s) as specified by the participating tire manufacturer for the Event.

C. For more detailed body height dimensions, refer to the rear pages of the Rule Book under Construction Guidelines.

12.8.2 Ground Clearance Requirements

A. The frame rail, sheet metal, front air dam extensions and rocker panel extensions ground clearance must be a minimum of four (4) inches.

B. The front air dam clearance must be a minimum of four (4) inches.

C. All suspension parts clearance must be a minimum of four (4) inches.

D. The exhaust pipe clearance must be a minimum of three (3) inches.

E. Engine ground clearance will be a minimum 12" and a maximum of 13" with driver, to be measured at center of crankshaft pulley to ground with driver in the car.

F. The bottom of the fuel cell container must have a minimum ground clearance of eight (8) inches.

G. Ground clearance requirements will be with the driver in the car.

12.9 Car Height Adjustment Devices

A. Mechanical or electrical devices for adjusting the car's height will not be permitted inside of the driver's

compartment.

B. Hydraulic or electronic weight shifting devices will not be permitted at any time.

C. Electrical, pneumatic, hydraulic, remote control, or any other devices that change the handling characteristics or height of the car, will not be permitted.

D. Car height adjustments will not be permitted on the left front suspension during a race unless approved by Track Officials.

13.0 STEERING COMPONENTS: The car steering components must be acceptable to Track Officials and meet the following minimum requirements:

A. All cars must be equipped with a magnetic steel steering shaft.

B. All steering boxes must be mounted in the stock location and the stock position at an angle of not less than 10 degrees on GM type front sub-frames. Any means of raising or changing the steering box position will not be permitted.

C. Tie rods, drag links, pitman arms, idler arms, and component parts must be heavy-duty magnetic steel. Holes and/or other modifications in steering components that, in the judgment of Track Officials, have been made with the intent of weight reduction will not be permitted. Heim joints (spherical rod ends) will not be permitted on any steering linkage.

D. The center top of the steering post must be padded with at least two (2) inches of resilient material acceptable to Track Officials.

E. A quick-release steering wheel coupling with a metal housing, acceptable to Track Officials, must be used. The steering wheel coupling should meet the SFI 42.1 specification.

F. The use of two (2) universal joints, a minimum of 12 inches apart, in front of the firewall and a collapsible steering section in the steering shaft is recommended and must be acceptable to Track Officials.

G. Rack and pinion steering will not be permitted.

H. Only magnetic steel spoke steering wheels will be permitted.

I. The power steering pump must be mounted and driven off the front of the engine.

J. All steering boxes must be constructed of magnetic cast steel.

14.0 BRAKES / BRAKE COOLING: The car braking, brake cooling systems and components must be acceptable to Track Officials and meet the following minimum requirements. Holes and/or other modifications that, in the judgment of Track Officials, are made or used with the intent of weight reduction will not be permitted.

14.1 Brake Components

A. Only single piston disc brakes with stock type calipers will be permitted front and rear. Brakes must be installed on all four (4) wheels. Floating brake calipers will not be permitted.

B. Only magnetic cast iron or magnetic cast steel circular brake rotors will be permitted. Rotors must maintain a minimum of 3/4 inch thickness and must not be drilled, slotted or grooved. The brake rotors must be bolted to the hubs. Floating brake rotors will not be permitted.

C. Master cylinder(s) and reservoir(s) must be mounted on the engine side of the front firewall.

D. Brake proportioning system adjustments inside the driver's compartment will be permitted. A mechanical cable assisted brake adjuster will be permitted and may be located inside the car within the driver's reach for adjustments during competition. The cable must be connected to a knob on one (1) end and to the mechanical balance bar threaded screw adjuster at the other end. The type and location of the mechanical cable assisted brake adjuster must be acceptable to Track Officials. Electronic or remote control devices will not be permitted.

E. Electronic wheel speed sensors or brake actuators will not be permitted.

F. Power assisted braking systems will not be permitted.

G. Brake fluid re-circulatory systems will not be permitted.

H. Brake rotors must be attached to the mounting hat or hub with positive fasteners.

I. Quick disconnect fittings on the brake lines will not be permitted.

J. Only one (1) brake caliper per wheel using only two (2) brake pads per caliper will be permitted.

14.2 Brake Cooling

A. All brake cooling parts, components, and installation must be acceptable to Track Officials.

B. One (1) fan or blower will be permitted. A "Y" type connector may be mounted to the rear of the fan or blower to allow the use of two (2) brake air ducts per wheel. Fans or blowers must be mounted in such a way as to draw air to the brakes only. All air entering the brake ducts must enter through the front of the lower vertical wall of the front bumper

cover. Brake ducts must not be installed in the radiator duct work or in the grille opening. Fans or blowers in the front of the car must be mounted to the sub-frame rail(s) and must not be lower than the bottom of the sub-frame rail(s). Fans or blowers in the rear of the car must be mounted to the sub-frame rail(s) or the rear trailing arms and must not be mounted lower than the bottom of the main frame rail or the bottom rear trailing arms. Mounting of brake cooling components must be acceptable to Track Officials.

C. A maximum of two (2) air ducts per brake, with a maximum three (3) inch flexible hose to the brake, may be used for brake cooling.

D. The maximum size for the air ducts is six (6) inches by eight (8) inches, and when installed they must not extend forward of the leading edge of the Front Bumper Cover/air dam. All air entering the brake cooling ducts must enter through the front of the lower front bumper cover or air dam through openings separate from the radiator ductwork.

E. Openings above the uppermost horizontal surface of the front bumper including the headlight openings must not be used to pick up air for brake cooling.

F. Liquid or gas cooling of the brakes will not be permitted.

15.1 Fuel: The word "Fuel", wherever used in this document, shall be understood to mean automotive gasoline.

A. The fuel must be automotive gasoline only. A five (5) gallon minimum must be purchased from the track on race day.

B. The gasoline must not be blended with alcohols, ethers or other oxygenates and it must not be blended with aniline or its derivatives, nitro compounds or other nitrogen containing compounds.

C. Icing or cooling of the fuel or the fuel system will not be permitted during the Event, in the garage, pit, or racing premises.

D. Track Officials have the right to sample a Competitor's fuel at any time during the Event. Samples will be impounded for observation and/or testing at the discretion of the Track Officials.

16.1 Fuel System

A. Track Officials will not permit the use of any previously approved fuel cells, containers, or check valves that appear to be damaged, defective, or do not function properly. Fuel cell vent pipe check valves are recommended. Check valves and the fuel cell must be acceptable to Track Officials.

B. Pressure systems will not be permitted. Any concealed pressure type containers, feed lines or actuating mechanisms will not be permitted, even if inoperable. Icing, freon type chemicals or refrigerants must not be used in or near the fuel system.

16.2 Fuel Cell: The use of a commercially manufactured fuel cell acceptable to Track Officials must be used.

A. The maximum fuel cell capacity, including the filler spout and overflow, must be 22 gallons. The nominal fuel cell bladder size must be 32-5/8 inches by 16-5/8 inches by 8-7/8 inches.

B. Materials other than standard foam, as provided by an approved fuel cell manufacturer, will not be permitted. Filler blocks or other materials, containers, etc., inside the fuel cell or fuel cell container to reduce the capacity of the 22 gallon fuel cell, will not be permitted.

C. Fuel cell check valve is required and must be acceptable to Track Officials. All approved fuel cells may be equipped with a steel ball fuel filler and fuel vent check valve assembly that meets the following minimum requirements:

(1) The fuel cell check valve housing must be manufactured of aluminum or magnetic steel plate not less than 1/4 inch thick. The bottom surface of the check valve plate must be flat. Spacers will not be permitted between the check valve plate and the fuel cell bladder.

(2) The solid steel ball check valve must be encased in a four (4) rail carriage. The carriage rails must be constructed of solid aluminum or magnetic steel not less than 1/4 inch thick by not less than 3/4 inch wide material. The carriage rails must be positioned such that the surface of the 1/4 inch thick edge rides against the steel check ball. Outside surfaces of the carriage must not have any sharp edges. The carriage must not be altered in any way and must remain perpendicular to the fuel cell check valve top flange plate.

(3) The fuel filler check valve carriage must not exceed a maximum depth of 8-11/2 inches. The maximum inside diameter of the filler neck including the check ball seat must not exceed 2-1/8 inches. When seated at least 1/2 of the check ball must be visible. The diameter of the solid steel check ball must be 2-3/8 inches.

(4) The fuel vent check valve carriage must not exceed a maximum depth of 8-1/2 inches. The maximum inside diameter of the vent pipe neck including the check ball seat must not exceed 1-1/4 inches. When seated, at least 1/2 of the check ball must be visible. The diameter of the solid steel check ball must be 1-3/8 inches.

(5) The fuel inlet tube and vent tube must have a bead around its circumference for hose retention.

16.3 Fuel Cell Container

- A. A fuel cell container must be used and must be acceptable to Track Officials and meet the following minimum requirements:
- B. The fuel cell must be encased in a container of not less than 22 gage (0.031 inch thick) magnetic sheet steel. Fuel cells must be fitted within the container so that the maximum capacity, including filler spout, will not exceed 22 gallons.
- C. The 22 gallon capacity fuel cell container size must be 33 inches by 17 inches by 9-1/4 inches (outside dimensions).
- D. Handles should be attached to the top at each end in the center of the fuel cell container for removal from the recessed well.
- E. The exterior of the fuel cell container should be painted red.

16.4 Fuel Cell/ Fuel Cell Container Installation: The fuel cell and fuel cell container must be installed in a manner acceptable to Track Officials in accordance with the following minimum requirements:

- A. The fuel cell and the fuel cell container must be fastened in the trunk compartment in a recessed well of not less than 24 gage (0.025 inch thick) magnetic sheet steel welded or attached to the trunk floor.
- B. The fuel cell and the fuel cell container must be installed as far forward as possible in the trunk compartment equal distance between frame rails.
- C. The fuel cell container, installed in the recessed well, welded to the trunk floor, from the top, must be secured on the top by a flat fuel cell top rack made of one (1) inch by one (1) inch by 0.065 inch minimum thick square magnetic steel tubing meeting the ASTM A-SOO specifications bolted without removable spacers through the tubing on the top side with the bolts continuing through the tubing of the bottom support frames with a minimum of eight (8) 3/8 inch diameter bolts. The flat fuel cell top rack must consist of two (2) tubes lengthwise and two (2) crosswise equally spaced across the top of the fuel cell container.
- D. The fuel cell container, installed from the bottom of the trunk compartment must be inside a recessed well that covers the bottom and all four (4) sides. When installed the recessed well must seal completely in the trunk compartment area. The fuel cell container and recessed well must be secured on the top by the fuel cell top rack made of one (1) inch by one (1) inch by 0.065 inch minimum thick square magnetic steel tubing meeting the ASTM A-500 specifications bolted or welded without spacers into the tubing on the top side with the bolts continuing through the tubing of the bottom support frames with a minimum of eight (8) 3/8 inch diameter bolts. The fuel cell top rack must consist of two (2) tubes lengthwise and two (2) crosswise equally spaced across the top of the fuel cell container.
- E. The front and rear fuel cell crossmembers must be constructed using a one (1) inch wide by three (3) inches in height with a minimum wall thickness of 0.065 inch magnetic steel tubing meeting the ASTM A-500 specifications.
- F. The bottom support frame must be constructed using three (3) tubes, one (1) inch by one (1) inch with a minimum wall thickness of 0.065 inch square magnetic steel tubing meeting the ASTM A-500 specifications, and must be equally spaced across the recessed well. These tubes must be welded or bolted to the fuel cell front and rear crossmembers. The support tubes must extend down the front and rear; equally spaced and under the fuel cell container recessed well (refer to the Construction Guidelines at the rear of these rules).
- G. The bottom of the fuel cell container must have a minimum ground clearance of eight (8) inches.
- H. A reinforcement bar, minimum 1-1/2 inches in diameter and with a minimum wall thickness of 0.083 inch magnetic steel tubing, must extend below the rear frame section behind the fuel cell. This reinforcement bar must be attached to the rear frame rails on both the left and right side with magnetic steel tubing, a minimum 1-1/2 inches in diameter and with a minimum wall thickness of 0.083 inch. This reinforcement bar must be as wide as the rear frame rails and extend as low as the bottom of the fuel cell with two (2) vertical uprights. The vertical uprights must be magnetic steel tubing, a minimum 1-1/2 inches in diameter and with a minimum wall thickness of 0.083 inch, evenly spaced between the frame rails and attached to the rear crossmember. Two (2), magnetic steel support bars, a minimum 1-1/2 inches in diameter and with a minimum wall thickness of 0.083 inch, one (1) located on each corner, must angle upwards and be welded to the rear frame rails. The reinforcement bar may be installed in the position of the angled support bars but must still have vertical upright bars at each corner and two (2) evenly spaced between the frame rails.
- I. A rear firewall of magnetic sheet steel not less than 24 gage (0.025 inch thick) must be located between the trunk compartment and the driver's compartment and must be welded in place.

16.5 Fuel Filler & Vent Requirements

- A. Fuel Filler: Dry coupling fuel connectors are eligible for use in the Late Model Stock Car Division. The fuel filler must meet the following minimum requirements:

(1) The dry coupling or filler cap must be bolted from the inside of the left quarter panel and be located in the side as high and as far back as possible or on top as far to the left as possible but not in the deck lid. When composite body panels are used there must be a ground cable installed from the metal mounting flange of the fuel filler receptacle to the fuel cell filler plate. Only steel or galvanized steel funnels are permitted in order to reduce the possibility of static electricity. Plastic funnels will not be permitted.

(2) Fueling will not be permitted by opening the rear deck lid.

(3) The check valve filler neck inside diameter must not exceed 2-1/8 inches. The outside diameter must not be less than 2-1/4 inches and not more than 2-1/2 inches.

(4) The maximum filler spout size is 4-1/4 inches outside diameter by eight (8) inches long then tapering over the next 8-1/2 inches to 2-1/2 inches outside diameter extending to an over all length of 18 inches.

(5) A minimum of 12 inches of clear flex hose must be used between the end of the filler spout and the fuel cell neck.

B. Fuel Cell Vent- The fuel cell must be vented as follows:

(1) A single one (1) inch maximum inside diameter vent to outside of body must be installed at the left rear corner in the taillight area only. A fuel vent flap valve is recommended on all tracks.

(2) The fuel cell check valve vent hose neck should not exceed one (1) inch inside diameter and three (3) inches in length. The fuel cell check valve vent hose neck should have a bead around its outside circumference for hose retention. The fuel cell vent flexible hose must have a maximum inside diameter of 1-1/4 inches and a maximum length of 60 inches when measured from the outside end of the fuel cell vent pipe to the top of the fuel cell fill plate. The hose should be secured with two (2) hose clamps at the fuel cell fill plate.

(3) When fuel is added during a pit stop, a crew member must catch any overflowing fuel into a container acceptable to Track Officials. The catch can must be metal and painted red.

16.6 Fuel Lines and Fuel Pump: Electrical devices or electrical connections will not be permitted on the fuel cell, fuel lines or between the fuel pump and the fuel line assembly. Fuel pressure may only be measured from the rear of the carburetor fuel line assembly.

16.5.1 Fuel Lines: The fuel lines and fuel line connections must be acceptable to Track Officials and meet the following minimum requirements:

A. The size, material, and location of the fuel cell pickup must be acceptable to Track Officials.

B. Only one (1) fuel line, a maximum AN-10 fitting, maximum 5/8 inch inside diameter steel braided fuel line, should be used from the fuel cell to the fuel pump.

C. The fuel line from the fuel cell to the fuel pump may be relocated to prevent vapor lock. If the fuel line runs through the right side of the driver's compartment, it should be enclosed in a straight (as viewed from above) one

(1) inch outside diameter magnetic steel tube, painted red and labeled "FUEL LINE".

D. A check valve, acceptable to Track Officials, mounted at the fuel line outlet on the fuel cell may be used.

E. Additional lines or extra length must not be used on the fuel system. Extra fuel lines or fuel cells, concealed or otherwise, will not be permitted.

F. Quick disconnect fittings will not be permitted.

16.5.2 Fuel Pump: The fuel pump must be acceptable to Track Officials and meet the following minimum requirements:

A. Electric fuel pumps will not be permitted.

B. Cooling of the fuel pump will not be permitted.

C. Only mechanical, lever-action, camshaft actuated fuel pumps in the stock location will be permitted.

D. A magnetic steel plate is required between the engine block and the fuel pump on General Motors engines. Thermal plates or gaskets will not be permitted.

17. Personal Safety Equipment – Refer to General Rules.

18. Roll Bars

A. As a minimum, all cars are required to have the basic and typical roll cage configured as shown in diagrams #2, #3, #4, and #5. Unless otherwise specified below, all roll bars must be made from round magnetic steel seamless tubing 1- 3/4 inches by 0.090 inch minimum wall thickness meeting ASTM A-519 specifications.

Electric resistance welded

tubing, aluminum and/or other soft metals will not be permitted. Roll bar joints and intersections must be welded according to ASTM specifications for the material being welded. Once constructed and installed, the roll cage must be acceptable to Track Officials. A maximum of one (1), maximum 1/8 inch diameter hole may be drilled at each welded roll cage joint for the purpose of purging the tubes when welding. Modifications or

alterations which detract from or compromise the integrity or effectiveness of any roll cage component will not be permitted. Holes and/or other modifications that, in the judgment of Track Officials, were made with the intent of weight reduction will not be permitted.

B. Basic Roll Cage Structure

(1) The main roll bar (#1 in diagram #5) must be a continuous length of tubing with one end welded perpendicular to the top of the right frame rail and one end welded perpendicular to the top of the left frame rail and with both rising vertically a minimum of 20 inches before bending inward and following along the inner surface of the "B" post to maintain a minimum clearance with the "B" posts and follow along the inner surface of the roof panel, the left and right side must be the same, with minimum clearance for the roof panel. The main roll bar (#1) must also be braced with one (1) diagonal bar (#5) and two (2) horizontal bars (#6) and (#7). All bends in the main roll bar

(#1) must be as symmetrical as minimum clearances permit.

(2) The distance from the center of each of the front roll bar legs (#2 A & B) to the center of the main roll bar (#1) must not measure less than 43 inches. Each of the front roll bar legs (#2 A & B) must be constructed from a continuous length of tubing. One leg must be welded perpendicular to the top of the right frame rail and one leg welded perpendicular to the top of the left frame rail with both legs rising vertically a minimum of 20 inches before bending inward and rearward to maintain a minimum clearance with the "A" posts. Both legs must follow along the inner surface of each respective "A" post. The front roll bar legs (#2 A & B) must be welded to the roof bar (#3) near the upper corners of the windshield.

(3) The roof bar (#3) must be a continuous length of tubing extending forward from the outer edges of the main roll bar (#1) with minimum clearance to the roof panel and remain parallel to the main frame rails. The roof bar must follow the contour of the windshield as it bends across the front maintaining a minimal clearance to the top of the windshield. The center to center width of the roof bar (#3) must be a minimum of 43-1/4 inches, and a minimum distance of 29 inches must be maintained from the centerline of the roof bar (#3) to the centerline of the main roll bar (#1). A minimum distance of 36-1/2 inches must be maintained from the top of the frame side rails to the centerline of the roof bar (#3) in the center of the door.

(4) The centerline roof bar (#4) must be welded from the main roll bar (#1) forward to the roof bar (#3) near the car's centerline. The center windshield bar (#4A) must extend forward from the roof bar (#3) near the car's centerline and bend downward following the back of the windshield with minimum clearance. The center windshield bar (#4A) must pass through the top of the dash panel and attach to a support bar under the dash panel at the firewall.

(5) The main roll bar diagonal bar (#5), must form a straight line with no bends and must begin near the upper left bend of the main roll bar (#1) behind the driver's head and after intersecting the horizontal shoulder bar (#7), it must be welded to the lower right side of the main roll bar (#1) where the horizontal tunnel bar (#6) is welded to the main roll bar (#1).

(6) Two (2) horizontal bars (#6 and #7) must be a continuous bar (one-piece) and must be welded with no bends, inside the vertical legs of the main roll bar (#1) with the horizontal tunnel bar (#6) welded just above the drive shaft tunnel and the horizontal shoulder bar (#7) at a minimum height of 20 inches above the main frame rails. An additional shoulder belt bar (#7B) may be added above the horizontal shoulder bar (#7) to facilitate shoulder harness mounting height. The shoulder belt bar (#7B) must be welded to the main roll bar (#1) and the main roll bar diagonal bar (#5) or it may be a bent tube constructed of 1-3/4 inches by 0.090 inch minimum wall thickness steel, round tubing, meeting ASTM-519 specifications, welded at each end to the horizontal shoulder bar (#7) to form a loop above the horizontal shoulder bar (#7). The shoulder belt bar (#7B) must not be forward of the plane of main roll bar.

(7) The diagonal bar (#7A) must be welded near the center of the horizontal shoulder bar (#7). The diagonal bar then extends forward to a junction with the roof support bar (#12) and continues through the firewall. This diagonal bar must be welded to the right front subframe rearward of the spring bucket or shock mount.

(8) The dash panel bar (#8) must be a continuous bar, with no bends, welded beneath the dash panel between the two (2) front roll bar legs (#2 A & B) at a minimum height of 20 inches above the main frame rail.

(9) The door bars (#9 A & B), on both the left and right sides, must have a minimum of four (4) bars equally spaced from top to bottom that must be welded horizontally between the vertical uprights of the main roll bar (#1) and the front roll bar legs (#2 A & B). The top door bar on each side must maintain a minimum vertical height of 20 inches from the top of the main frame rails to its centerline and match up with the intersection of the dash panel bar (#8) at the roll bar legs (#2A & B) at the front and the intersection of the horizontal shoulder bar (#7) at the main roll bar (#1) at the rear. All door bars must be convex in shape except the bottom door bar

on each side which may be straight. The door bars (#9 A & B) must have a minimum of six (6) vertical supports per side with two (2) equally spaced between each door bar. These supports must be made from a minimum of 1-3/4 inches by 0.090 inch wall thickness magnetic steel seamless round tubing (not numbered but shown in the left side view of diagrams #3, #4 & #5). A magnetic steel plate, 1/8 inch thick, may be installed over the left side door bars and welded or bolted in place with not less than four (4) minimum 1/2 inch diameter bolts in place.

(10) The vertical vent window bars (#10 A & B) must be welded from the upper surface of the top door bars on the right side and left side to the front roll bar legs (#2 A & 8). The vertical vent window bars (#10 A & 8) must be perpendicular to the top door bars (#9 A & B) and be in line with the vertical supports of the door bars. An optional vertical bar may extend from the roof hoop bar (#3) radiused outward and turn down to the top of the horizontal door bar (#9A) on the driver's side. The optional vertical bar must be a minimum 1 1/2 inch diameter by 0.090 inch wall thickness magnetic steel seamless round tubing and must be located in line with the driver and must not extend forward of the left side headrest/head surround assembly.

(11) The two (2) angular supports (#11 A & B) must be welded to the top of the main frame rail and to the bottom surface of the second door bar from the bottom.

(12) The roof support bar (#12) must extend from the right front corner of the roof bar (#3) intersecting the diagonal bar (#7A) and down to the rear suspension crossmember. The roof support bar (#12) must be welded near the area of the intersection with the front roll bar leg (#28) and the roof bar (#3).

(13) The rear support bars (#13 A & B) must be continuous lengths of tubing welded to the left and the right back side of the main roll bar (#1) near the roof panel at the top. They must extend to and be welded to the top of the rear sub-frame rail within one (1) inch of the rear edge of the fuel cell.

(14) The trunk reinforcement bar (#14) must form a loop directly above the rear subframe side rails and the rearmost crossmember and be welded to the rear support bars (#13 A & B). The trunk reinforcement bar (#14) must maintain a minimum height of five (5) inches from the top of the rear crossmember to trunk reinforcement bar (#14's) center.

(15) Three (3) rear vertical support bars (#15), evenly spaced, must be welded perpendicular to the top of the rear crossmember and to the bottom surface of the trunk reinforcement bar (#14). These vertical supports must be made from a minimum of 1-3/4 inches by 0.090 inch wall thickness magnetic steel seamless round tubing.

(16) The two (2) front sub-frame bars (#16 A & B) must be a minimum 1-3/4 inches by 0.083 inch wall thickness magnetic steel seamless round tubing. They must be welded to the right side and the left side of the front roll bar legs (#2 A & B) at a minimum height of 20 inches. The front sub-frame bars (#16 A & B) must extend forward through the firewall, in a similar design as the diagram in the rear pages of the Rule Book, turn down, and must be welded to the front sub-frame rails forward of the spring buckets or shock mounts near the radiator mount. All other support bars to the front sub-frame must be 1-3/4 inches round magnetic steel seamless tubing by 0.083 inch minimum wall thickness.

C. Gussets

(1) Gussets must be used at the intersection where the main roll bar (#1) and the front roll bar legs (#2 A & 8) meet the main frame, and the gussets must be constructed using a minimum one (1) inch wide by two (2) inches high magnetic steel box tubing.

(2) Gussets must be used at the intersection where the front roll bar legs (#2 A & B) intersect the roof bar (#3), and the gussets must be constructed from a minimum 0.095 inch thick triangular-shaped magnetic steel flat plate measuring a minimum of 1-1/2 inches long on each side that is to be welded.

(3) Gussets must be used at the intersection of main roll bar (#1) and the front roll bar legs (#2 A & B) with door bars (#9 A & B) and the gussets must be constructed from a minimum 0.095 inch thick triangular-shaped magnetic steel flat plate measuring a minimum of 1-1/2 inches long on each side that is to be welded.

(4) Gussets must be used at the intersection of main roll bar (#1) and the rear support bars (#13 A & B), and the gussets must be constructed from a minimum 0.095 inch thick triangular-shaped magnetic steel flat plate measuring a minimum of 1-1/2 inches long on each side that is to be welded.

D. For the approved location of the various roll bars, please reference both the basic roll cage diagrams and the typical roll cage diagrams at the back of the Rule Book.

E. Modifications to the basic and typical roll cage design described above must be submitted in blueprint form for acceptance to the office of the ORANGE COUNTY SPEEDWAY Competition Administrator at least 60 days before the design can be entered in competition. If the Competition Administrator accepts the modification as set forth in the submitted blueprints, the Competitor must submit for inspection a completed frame and roll cage at least 30 days prior to the date of intended competition. Acceptance of the submitted blueprint does not

guarantee acceptance of the completed frame and roll cage design, and the Competition Administrator may decide not to accept such design even if it is the same as the blueprint form. If the Competition Administrator accepts the completed frame and roll cage, it may then be used in competition in the form accepted, unless and until the form is no longer approved by the Competition Administrator.

F. All roll bars within the driver's reach must be covered with an impact absorbent material recommended to be manufactured to the SFI 45.1 specification and should have the SFI logo imprinted on the outside surface and be acceptable to Track Officials.

G. All references to the roll cage, roll bars, roll cage bars or the roll cage bar design specified in other sections of the Rule Book refer to sub-section 18.

H. At the discretion of Track Officials, additional material and/or tubing may be required to be welded to any car that does not conform to the January 1, 2007 roll cage or roll bar specifications as described in sub-section 18.