

**WISCONSIN UNIFIED GRAND NATIONAL  
SANCTIONING TRACKS**  
**141 SPEEDWAY**  
**PLYMOUTH DIRT TRACK RACING**  
**GRAVITY PARK - CHILTON**  
**BEAVER DAM RACEWAY**

**GRAND NATIONAL DIVISION – 2020**

Open to two-wheel drive American automobiles provided they comply with, and adhere to, specifications as outlined for this division.

**NOTICE**

ALL EQUIPMENT IS SUBJECT TO THE APPROVAL OF UNIFIED GRAND NATIONAL OFFICIALS. NO EQUIPMENT WILL BE CONSIDERED AS HAVING BEEN APPROVED BY REASON OF HAVING PASSED THRU INSPECTION UN-NOTICED. EFFORTS TO TAKE ADVANTAGE OF "LOOP HOLES" IN THESE RULES WILL NOT BE TOLERATED. ALL RACE CARS WILL BE SUBJECT TO INSPECTION BY TRACK OFFICIALS AT ANYTIME.

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. 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 an/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 opinion do 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.

Numbers are required on the door or quarter panel and must be at least 20" tall and 4" wide. A number is required on the roof, readable from the right side, and must be at least 30" tall. No Roman numerals. Numbers must also be on the front and back of car for ease of lineups, and be at least 4" tall. NO METALLIC OR HOLOGRAPHIC NUMBERS WILL BE ALLOWED. Numbers need to be of contrasting color to the main color scheme. If there are double numbers a letter will be issued to you by the track to go with your number. If a letter is required with the car number, the letter must be at least fifty percent (50%) of the height of the number. IT IS THE RESPONSIBILITY OF THE DRIVER TO ENSURE THAT THE SCORERS CAN READ THE CAR NUMBER. IF YOUR CAR NUMBER IS NOT READABLE FROM THE SCORING TOWER, THE CAR WILL NOT BE SCORED UNTIL THE NUMBER IS CORRECTED.

The racetrack reserves the right to assign car numbers, and to assign or restrict the display of graphics and advertising on race cars. Offensive graphics or slogans are not permitted. All Competitors agree to accept anctioning track's decision in this matter.

Where required, participating sponsor's emblems, or decals will be placed in the position designated by the sanctioning tracks Officials. Cars that do not display all sponsors emblems, or decals, will receive less prize money.

All cars in competition are required to have a working Westhold transponder. The older style traansponder must be mounted silver side facing the track surface. The front of the transponder must be placed twenty four inches (24") behind the center line of the rear axle, on the right side frame rail. The old style transponder pouch should be placed horizontally, with a clear view to the ground. If the transponder pouch is mounted to round tube frame components with nylon ties. the transponder pouch should be secured so that it cannot spin from its horizontal position. The new style westhiold transpnder must be mounted vertically as per the manufacturers instructions in the same location. Failure to comply with transponder requirements will result in a penalty. Penalties will be imposed in accordance with the track rules. No switches permitted on transponder power supply.

## **6.1 ELIGIBLE MODELS {car bodies}**

1960 or Newer GM, AMC, Chrysler, Ford or U.S. manufactured auto. Pickup truck bodies are not permitted. No station wagons or convertibles allowed.If you are utilizing a body style not previously run , you must get prior approval from the sanctioning track's Technical officials.

Other models may be approved, provided they are of the same body configuration and meet the spirit and intent of competitive racing.

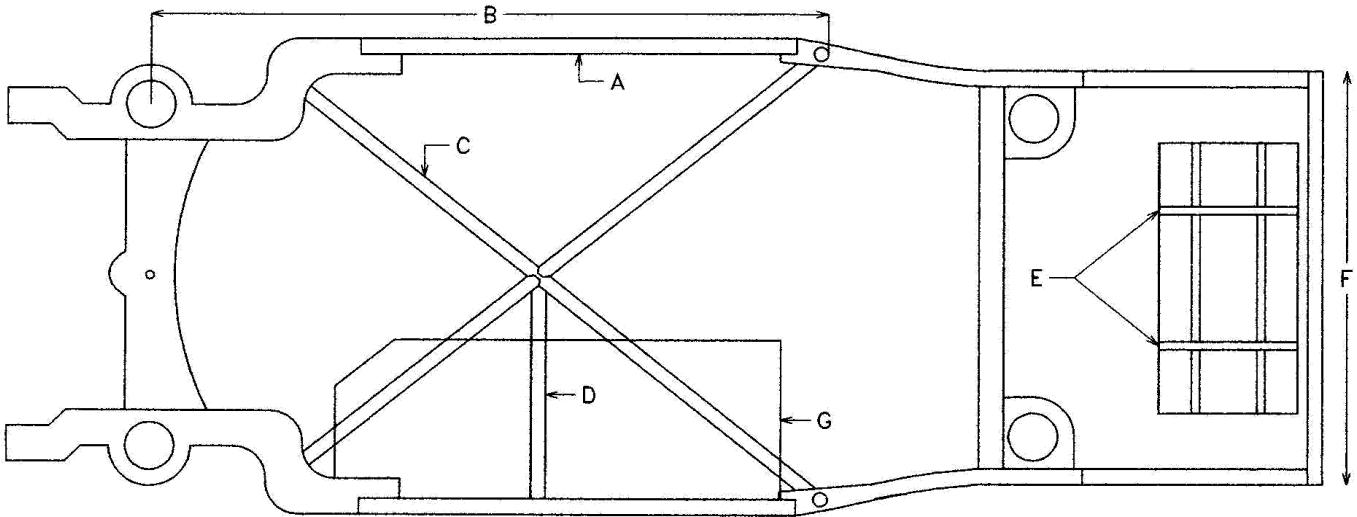
The minimum weight for Grand National cars utilizing the gm#889604 or gm# 19318604 sealed crate engine will be monitered and reviewed to ensure a competitive balance is maintained. Forty lbs of bolt on added weight must be placed in front of the rear of the engine block when using this motor. All cars may be weighed periodicaly for research purposes by the Unified Grand National officials.

All weights are with the driver, **after competition**. The minimum weight for Grand National cars with the gn604 Engine will be monitored and adjusted, if necessary.

## **6.2 FRAMES**

1978 to 1988 GM metric frames only unless run previously. Frames must be X-ed; side rails must be plated where open. Front cross member may be notched and plated for fuel pump clearance only. Cars with Ford engine may notch the front cross member for oil pan clearance. Weight jacks or screw jacks allowed. Frame rails behind rear spring pockets may be cut and fabricated. Minor notching for shock clearance in the front spring pocket area permitted. No

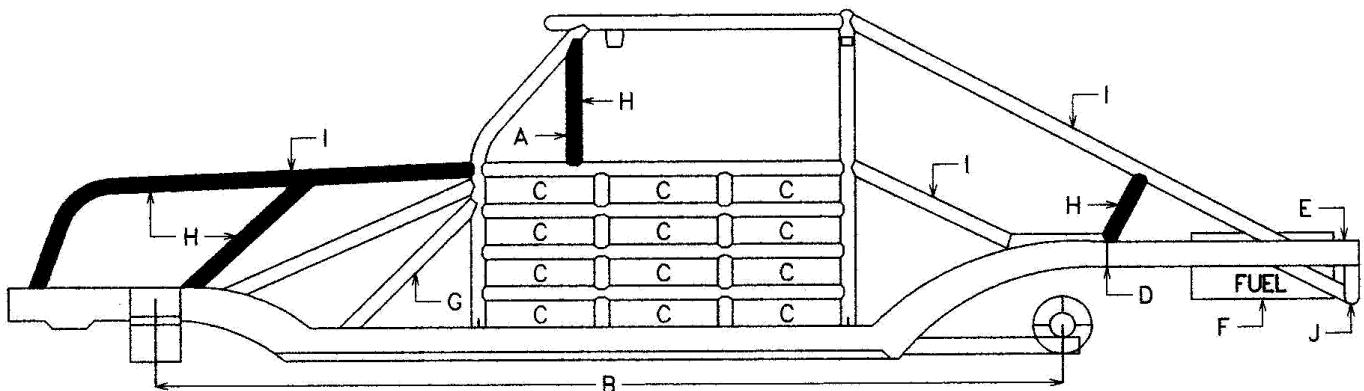
other improvements allowed except to repair rusted or damaged areas. See diagrams.



- A - FRAME PLATING MATERIAL (4" x 1/8") FLAT STRIP STEEL  
B - ROLL CAGE MAIN/HOOP SET BACK 82-1/2" MEASURED FROM CENTER OF LOWER BALL JOINT TO BACK OF MAIN/HOOP TUBING  
C - MANDATORY X-BRACE (CHOOSE 1 NO MIXING OF MATERIALS)  
1-3/4" x 0.095 ROUND; 1-3/4" x 1-3/4" x 0.083 or 2" x 2" x 0.065 SQUARE  
D - DRIVERS COMPARTMENT SAFETY/BAR (SAME MATERIAL AS X-BRACE)  
E - FUEL/CELL SAFETY STRAPS (MIN. 4) 1" x 1/8" STRAP STEEL  
F - TAIL SECTION REPLACEMENT SAME DIMENSIONS AS STOCK FRAME  
G - FLOOR PLATE 1/8" STEEL PLATE MINIMUM WIDTH 20" AT SEAT  
\*\*\* NOTE \*\*\*  
X-BRACE MUST TIE IN TO ORIGINAL FRAME, NOT FRAME PLATING

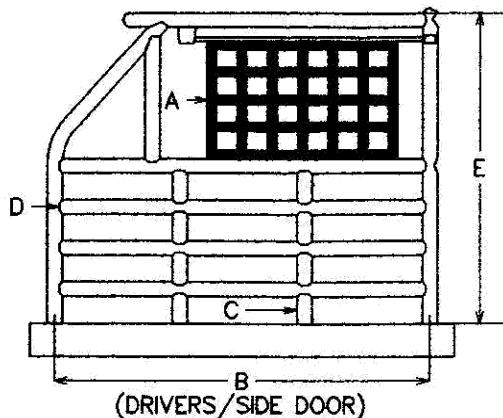
### 6.3 ROLL CAGES

All roll cages must be constructed according to construction diagrams, unless approved in advance by Unified Grand National Officials. Four point roll cage constructed of 1 3/4" x 0.095" wall steel round tubing. One front and one rear cross brace, recommended height at 20". The main hoop behind driver must be cross-braced. The top hoop must have cross brace of same size size and thickness material as roll cage. Two passenger side and four driver side door bars, with driver side door bars plated and having two upright bars between each driver door bar. Wing window bars on drivers' side mandatory, passenger side recommended. Foot protection bar required. Two front support bars must start at cross brace height at roll cage corners and extend forward to frame. Four rear support bars must extend to frame, two starting at the rear cross brace at roll cage comers and two from the top comers of the rear cage hoop. See diagrams.

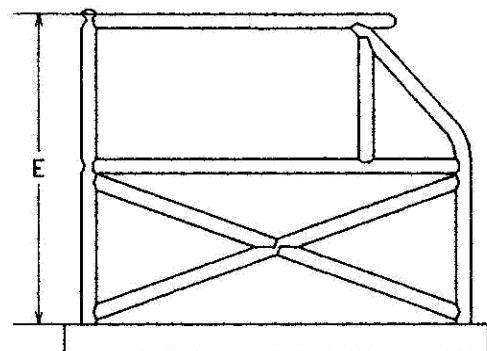


#### CONSTRUCTION GUIDELINES

- A - WING WINDOW BARS (MANDATORY)
- B - WHEEL BASE (108" MINIMUM)
- C - MANDATORY SAFETY PLATING (1/8" STEEL MINIMUM)
- D - STOCK FRAME THIS POINT FORWARD
- E - REAR END SECTION (2" x 3" x 0.095 WALL STEEL TUBING)
- F - FUEL CELL CAN MANDATORY (MATERIAL - 20 GAUGE STEEL)
- G - FOOT AREA PROTECTION BAR (MANDATORY)
- H - DARK SHADED BARS MAY BE 1-1/2" x 0.065 WALL STEEL TUBING ALL OTHERS MUST BE 1-3/4" x 0.095
- I - ALL CAGES MUST HAVE THESE FRONT & REAR SUPPORT HOOPS/BARS
- J - BRACED 0.065 WALL STEEL TUBING FUEL CELL GUARD



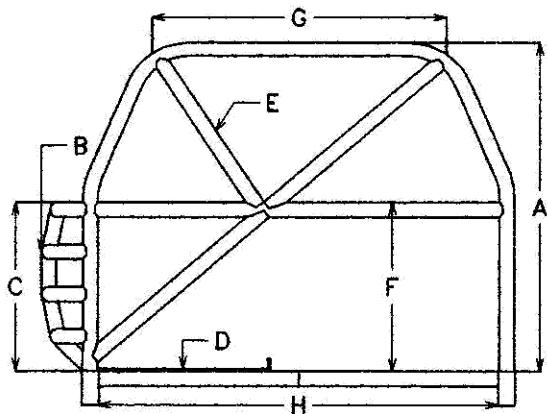
(DRIVERS/SIDE DOOR)



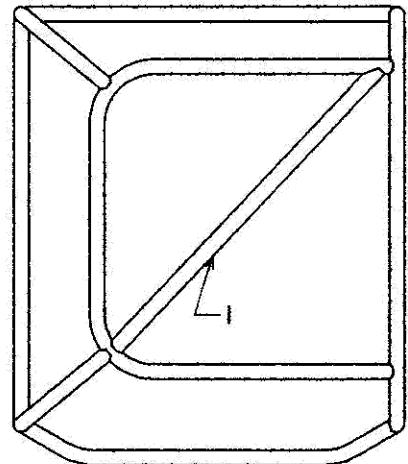
(RIGHT SIDE VIEW)

#### DOOR BAR CONFIGURATION

- A - APPROVED RACING WINDOW NET (MANDATORY)
  - B - RECOMMENDED DOOR/BAR LENGTH 44"
  - C - 2 DOOR/BAR UP-RIGHTS BETWEEN EACH DOOR/BAR (MANDATORY)
  - D - 4 - DOOR/BARS EVENLY SPACED ON DRIVERS/SIDE (MANDATORY)
  - E - HALO BAR 37" FROM TOP OF FRAME TO TOP OF HALO BAR MEASURED AT B PILLAR (MINIMUM)
- \*\*\* NOTE \*\*\*  
ALL DRIVERS SIDE DOOR/BAR MATERIAL (MIN. 1-3/4" x 0.095)



(REAR VIEW)



TOP HOOP (HALO BAR) DETAIL

- A - MAIN HOOP (VERTICAL TO FRAME) 39" HIGH FROM TOP OF FRAME (RECOMMENDED)
- B - DOOR/BARS SHOULD BE FLUSH TO DOOR PANEL. (WITH THE BODY CENTERED & MOUNTED IN STOCK LOCATION ON THE FRAME)
- C - DOOR/BAR HEIGHT - (MIN. 20" HIGH FROM TOP OF FRAME)
- D - FLOOR PAN - (MIN. 20" WIDE IN DRIVERS SEAT AREA)
- E - EXTRA MAIN HOOP/HEAD REST BAR (OPTIONAL)
- F - CROSS/BAR RECOMMENDED HEIGHT 20" (FOR SHOULDER HARNESS)
- G - ROOF/HOOP TO FIT ROOF SIDE TO SIDE (MIN. LENGTH 34")
- H - ROLL CAGE WIDTH - (SAME AS STOCK FRAME WIDTH)
- I - TOP HOOP DIAGONAL BRACE

#### 6.4 DRIVER'S COMPARTMENT

Seat belt and shoulder harness must be date stamped 2017, 2018, or 2019 and be in good condition. Y-type shoulder harness prohibited. Belts must not be frayed. Seat belt and shoulder harness must be installed according to manufacturer's recommendations. Lap and shoulder belts must be approved snap-type release belts at least two (2") or three (3) inches wide, SFI approved safety restraint system, and securely fastened to the frame and or roll cage. A crotch or anti-submarine belt is mandatory, and must be a minimum two (2) inches wide. The shoulder belts must be mounted in accordance with the manufacturers mounting instructions. At no time should the shoulder belts wrap around the top of the driver's shoulders and mount to the floor. Neck collar optional. Drivers not wearing a neck collar will be required to wear a fire retardant head sock. Head and neck restraint recommended.

Window net, in good condition , required, large mesh type highly recommended. Net should release from top front corner with a seat belt snap and drop downward. Net must be up and fastened at all times while car is on the track.

All cars are required to have adequate roll bar padding (SFI rated fire retardant recommended) and an approved fan shroud.

The center of the steering wheel must be padded.

**All roll cages must provide 2" or more clearance, measured from the top of the halo bar to the top of the driver's helmet, when the driver is seated and strapped in, with the helmet on**

**and in a driving position.**

Aluminum, high back racing seat is mandatory. Seat must be bolted securely with a minimum Grade 5, 3/8" minimum diameter bolts in a minimum of six (6) places. Four (4) in the bottom of the seat and two (2) in the back. No carriage bolts.

All in-car communication devices are prohibited (exception is one-way Raceceiver radio). Mirrors are prohibited. Securely mounted camera's permitted. Camera's must not record any suspension components. Competitors assume any liability from publishing video images.

## **6.5 BODIES**

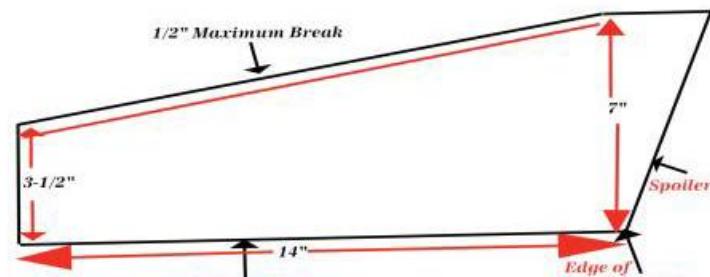
Production passenger car, or pickup truck, stock or after market template/straight-up style steel, approved plastic or aluminum body panels for fenders, quarter panels and trunk. Plastic front fenders and rear quarter panels are permitted but must meet the approval of the raceway tech staff. Hood must be steel, aluminum or fiberglass and the back of the hood must be sealed down completely. Door panels to be stock or sheet metal or aluminum. No door handles, locks, moldings, factory plastic or chrome accent pieces left on the stock panels. Factory or after market plastic nose and tail pieces okay. Rear of car must be completely enclosed, from the trunk lid down, with a cover that is a minimum of twenty inches (20") high. Quarter panels may not be lower than the bottom of the rear bumper cover. Bumper cover must be sealed to rear deck and rear quarters. No venting of any type permitted. Rear quarters, and sail panels must be the same configuration on both sides. Nose of car must look stock appearing and neat looking - no wedge type or late model noses. NO wedge type bodies. Bodies to be within one inch of stock. Bodies must remain stock appearing. Minimum 2" bow in door profile. No slab sided bodies. All doors and quarter panels must have a stock appearing top edge. Five Star Dirt Sportsman dimensions will be used as a guideline. Any after-market body will meet these dimensions. The track staff will be the final judge as to stock appearing. Roof must retain stock contours. Flat roofs are prohibited. No holes in hood or hood scoops. Hood pins to be used in hood and trunk. Stainless steel windshield screen, must be no less than 0.063" for mesh larger than 1/2" or no less than 0.035" for 1/2" or smaller mesh (no larger than 1" mesh screen allowed), to cover entire opening with three upright braces top to bottom of 3/8" or larger solid rod. Spoiler allowed on rear of trunk lid not to exceed 6" base to tip, and be no wider than 60 1/2", if using spoiler end plates. Spoilers not using end plate may have a width not exceeding the rear fenders. Recommended the spoiler be made of clear polycarbonate. At some future date clear spoiler will be required. No side boards, wickerbills, or any other air controlling devices. No fins, lips, rudders allowed. No forward facing solid spoiler braces other than the following.. Max. of 3 - 1" wide strap style or 3/8 round forward facing braces permitted. Optional rear spoiler is the Mid-Am approved Five Star wing. Must meet the approval of Beaver Dam officials. Two & one half-inch (2 1/2") nonfunctional hood scoop allowed.

Body parts must be neat and well painted. Car numbers must be painted a contrasting color and numbers between 00 and 99. No Roman numerals permitted. Numbers must be painted on both sides and roof to face grandstand. Numbers must be at least 16" high and 3" wide. Numbers of legible size must also be placed on the front and rear of the car to aid in line-ups. If a letter is required with the car number, the letter must be at least fifty percent (50%) of the height of the number.

The car at its widest point, including rub rails may not exceed 78".

Interior sheet metals to cover all openings-front, rear and side. Tapered floor from driver to right side can be any style as long as no higher than cross brace. Floor plate under driver of 1/8" steel, 20" wide and length of driver. Interior deck must be constructed in a manner to provide driver egress. Must not be fabricated to act as an air controlling surface.

Absolutely no air induction of any type allowed. Spoiler end plates permitted on spoiler not exceeding 60 1/2" wide. Cars using full body width spoiler may not use end plates. One on each end, per not to exceed the dimensions in the diagram. There must be a minimum of 3" gap between the end of the sail panel and the front of the spoiler end plate. (See Diagram)



## 6.6 ENGINES

American made production V-8 engine blocks only. Must be production cast iron block with standard external measurements in all respects with the exception of the permissible 0.060 over bore maximum. No aluminum, Bowtie, Rocket, SVO, 'X' or 'R' blocks allowed. No removing of identification numbers. No grinding or lightening.

O.E.M. stock production, or O.E.M. replacement crankshafts, only, with I.D. numbers intact. Must have stock stroke for the block being used. Must remain unaltered except for balancing. Minimum crank weight is 48 lbs.

Forged connecting rods only. Must remain stock length for the block being used (except 400 Chevy may use 5.7 rod). No titanium or aluminum rods. Through bolts or cap screws permitted H-beam rods permitted, providing they comply with all specifications.

Any flat top or reverse dome piston may be used as long as it has the stock wrist pin height for the engine being used (except 400 Chevy). Valve relief may be cut into the piston. No portion of the piston may protrude above the top of the block.

Any hydraulic or flat tappet steel camshaft with a maximum of 0.500 lift measured at the retainer. Stock diameter tappets only. No mushroom or roller tappets allowed. No stud girdles or rev kits. Standard timing chain only - no gear drive or belt drives will be allowed. Stock type or roller rockers permitted.

Cylinder heads must be stock steel production only. No Bowtie, fuel injection type, SVO, W2, GT 40 or after market heads allowed. Vortec heads permitted. World Products Sportsman 2

heads permitted with a maximum compression ratio of 11.0 to 1.. Only two valves and one spark plug per cylinder. No titanium parts in the valve train allowed. Intake and exhaust ports must be in the original "as cast" configuration. Any evidence of any sanding, polishing, relieving, grinding, porting, chemical treating, abrasive blasting, alteration to the original form or the addition of material to the ports or combustion chambers is strictly forbidden. No external sanding, grinding or removal of I.D. numbers or symbols. Valves must be stock production size and in stock location. Small block Chevy maximum valve size is 2.02" intake and 1.60" exhaust, measured across the face of the valve. . Screw in studs and guide plates allowed. Any valve spring permitted. No chemical or ceramic work allowed in internal areas of intake or heads.

Oil pump must remain in stock location. No dry sumps or external oil pumps allowed. After market oil pans and breathers are allowed. A 1" inspection plug should be located between cylinder 5 and 7 is recommended. If no plug is installed, and inspection is required, competitor may be asked to remove the oil pan. Oil cooler, if used, to be in engine compartment only. Oil accumulators (Accusump's) may not be located in the driver's compartment.

Stock production cast iron intakes on engines over 365 cubic inch. Following aluminum intakes numbers allowed on 365 cubic inch or less-GM: Victor Jr 2975, 2972, 7116 and 2101, Weiand 7546 or 7547. Ford: 2981 or 2760 and 2665 or 2750, Cleveland 7516 or 7517. AMC: 2930 or 2035. Chrysler 2915 or 2176. Edelbrock: 7101 and 7501. After market or stock intakes to remain untouched. NO Marine type intakes.

Stock cast iron exhaust manifolds or headers permitted. No 180 degree headers or merge collectors are permitted. No tri-Y headers permitted. Maximum O.D. of headers 1 3/4 inches. Exhaust must exit under car, behind driver and be angled down. Mufflers are mandatory and car must pass noise level test (95 decibel at 50 feet).No side exiting exhaust

Factory type ignition, no Multi-spark discharge or mags.

One (two or four barrel) carburetor only with maximum spacer height of 1 1/4". No aerosol carburetors. Only 2 gaskets (1 per side), with a maximum thickness of 0.065 inches, may be used. Two return springs mandatory. No throttle cables allowed must be mechanical linkage. Toe strap on gas pedal required.

Stock cast iron or after market aluminum water pump.

One radiator stock brass or aluminum in front of motor. Metal Shroud to cover top 180 degrees of fan. Absolutely no anti-freeze in radiator. Two-quart overflow can mandatory.

Mini-Starter allowed. No reverse mounted starter. Must be able to start car.

Engine must be centered between frame rails. Chevrolet engine set-back to be measured as 33 1/2" from top steering box mounting bolt to rear of engine and 15 1/2" from steering box mounting

bolt to #1 cylinder spark plug. Ford engine set-back is under review and will be published as an amendment. Crankshaft centerline can be no less than 7 ½" from bottom of front cross member.

### **6.6.1 OPTIONAL ENGINE 1**

Only V-8 engines with a maximum displacement of 360.0 cubic inches are permitted. The maximum compression ratio is 11.00 to 1. Engine must be inspected and sealed by a Unified Grand National Technical Official.

Block must be a factory production **cast iron** block with external measurements identical to the standard production engine. Angle milling of block is prohibited. **All** engine block markings must remain. No aluminum engine blocks permitted. The maximum cylinder bore is 4.060 inches.

Only OEM cast iron or forged steel, or the following aftermarket crankshafts are permitted:

<u>Manufacturer</u>	<u>Pro-Line</u>	<u>Scat</u>	<u>C.A.T.</u>	<u>Eagle</u>
GM	-----	5-350-3480-5700	-----	435034805700
FORD 351	-----	4-351W-3500-6000	-----	435135006200

**Titanium crankshafts are prohibited.** Crankshafts with rod journal sizes less than 1.970 inches or undersized rod journals less than original factory specifications are prohibited. GM crankshaft must have a 3.48 inch stroke. Ford crankshaft must have a 3.50 inch stroke. Minimum crankshaft weight is 48 lbs. Lightweight, knife-edge, and undercut counterweight, crankshafts are prohibited.

Steel type balancer only - aluminum balancers are prohibited.

Any flat top, dished, or inverted dome piston may be used. Valve relief's may be cut into pistons. No part of the piston may protrude above the top of the block. Wrist pin hole must be in the stock location.

Only OEM magnetic steel, or the following aftermarket, connecting rods are permitted:

<u>Manufacturer</u>	<u>Pro-Line</u>	<u>Scat</u>	<u>C.A.T.</u>	<u>Eagle</u>
GM	ROH-1-1	2-350-5700-2000	CRS-5700	CRS5700B3D
FORD 351W	ROH-2-6	2-351-5955-2311-912	CRS-5956	CRS5956F3D

**Titanium rods are prohibited.**

Steel oil pan only. All aftermarket oil pans must have an O.E.M style pan rail. Oil pan must be equipped with a 1 inch plug for inspection. The plug must be directly inline with a rod journal. Engines equipped with a windage tray must provide a hole in the tray, in line with the plug.

Oil pump must remain in stock location. No dry sumps or external oil pumps allowed. After market oil pans and breathers are allowed. Oil cooler, if used, to be in engine compartment only. Oil accumulators (Accusump's) may not be located in the driver's compartment.

Only the following approved cast iron cylinder heads may be used:

<u>Manufacturer</u>	<u>Cylinder head</u>	<u>Intake Runner Volume Measured in cc's</u>
GM	World Products Sportsman II WRDO11150	200 cc's
FORD	M-6049-N351	195 cc's

Cylinder heads must remain stock. All cylinder head markings must remain. Angle milling, chemical treating, acid dipping, acid flowing, abrasive blasting, bowl cutting, addition of material to the ports or combustion chamber, or other alterations to the original, as cast, head is prohibited. Valves, rocker studs, head bolts, and spark plugs may not be relocated. No polishing or grinding of ports, runners, or combustion chamber is permitted. The cylinder head to block surface may only be machined a maximum of 0.050 inches from OEM.

Minimum combustion chamber size shall be 62.0 cc's for all models. A three angle valve job may be done as long as no machining marks are more than 1/8" above the head of the valve.

The maximum valve sizes, as measured across the face, are as follows:

<u>Manufacturer</u>	<u>Intake</u>	<u>Exhaust</u>
GM	2.020 inches	1.600 inches
FORD	2.020 inches	1.600 inches

Use of titanium valves is prohibited. The maximum allowable spring diameter is 1.57 inches. Any valve spring permitted.

Any steel or cast-iron camshaft may be used. Chain and sprocket camshaft drive system only. Camshaft journals must be stock for engine. Rollerized camshaft bearings are prohibited. The maximum camshaft lift is 0.500 inches, measured at the valve.

Roller tappets are permitted. Any steel solid lifter is permitted. Hydraulic lifters of any type are prohibited. Rev kits are prohibited. Only the following lifter diameters are allowed:

<u>Manufacturer</u>	<u>Maximum Diameter</u>
GM	0.843 inches
FORD	0.875 inches

Only magnetic steel push rods are allowed. Roller rocker arms are permitted. Shaft type rocker arms are prohibited. Stud girdles are permitted.

Only the following approved intake manifolds may be used:

<u>Manufacturer</u>	<u>Intake Manifold</u>
GM	Victor Jr. 2975
FORD	Victor Jr. 2981 (Ford Part No. M-9424-V351)

No material may be added to the intake manifold. Grinding or polishing of the ports is prohibited. Port matching of the intake manifold is prohibited.

Only one flat gasket, with a maximum thickness of 0.120 inches, may be used between the intake manifold and cylinder head. No spacer or wedge type gaskets are permitted between the intake manifold and head.

Stock cast iron exhaust manifolds or headers permitted. No 180 degree headers, or merge collectors. No tri-y headers permitted. Maximum O.D. of headers 1 3/4 inches. Exhaust must exit behind driver No side exiting exhaust. Exhaust must be directed down. Mufflers are mandatory and car must pass noise level test (95 decibel at 50 feet).

Factory type ignition only.

One (two or four barrel) carburetor only with maximum spacer height of 1 1/4". No aerosol carburetors. Only 2 gaskets (1 per side), with a maximum thickness of 0.065 inches, may be used. Two return springs mandatory. No throttle cables allowed must be mechanical linkage. Toe strap on gas pedal required.

Stock cast iron or after market aluminum water pump.

One radiator stock brass or aluminum in front of motor. Metal Shroud to cover top 180 degrees of fan. No electric fans. Absolutely no anti-freeze in radiator. Two-quart overflow can

mandatory.

Mini-Starter allowed. No reverse mounted starter. Must be able to start car.

Engine must be centered between frame rails. Engine Set-Back to be measured as 33½" from top steering box mounting bolt to rear of engine and 15½" from steering box mounting bolt to #1 cylinder spark plug. Crankshaft centerline can be no less than 7½" from bottom of front cross member.

#### **6.6.1 OPTIONAL ENGINE 2**

GM crate engine permitted. Crate must use unaltered factory sealed, GM or IMCA authorized rebuilt and resealed rebuilt GM#88958604 , #19318604, # 88958602,or #19258602 engine. Rebuilt crate engine must maintain all original specifications and may not be altered in a manner to improve performance. The oil pan may be replaced with Champ pan #cp100lrb and Champ pick-up part #100sb. Installation of these parts must be performed at a facility approved by track technical officials. Altered or missing seals will result in immediate disqualification , suspension and fine (to be determined by Unfied Grand National officials). GM crate motor if using a spacer must use unaltered carb spacer Moroso # 64940 or Speedway motor # 545-64940. No adjustable throttle bore carburetor spacers. GM604 Crate motor must run 6400rpm rev limit chip or setting. rev chip limit will be review and maay be adjusted to ensure a competitive balace iss maintained. Cars using this engine will have their weight checked periodicaly. Cars must also have forty lbs of ballast(weight) added to their chassis in front of the rear of the engine block.

Stock cast iron exhaust manifolds or headers permitted. No 180 degree headers or merge collectors are permitted. Maximum O.D. of headers 1 3/4 inches. Exhaust must exit under car, behind driver and be angled down. Mufflers are mandatory and car must pass noise level test (95 decibel at 50 feet).No side exiting exhaust

Factory type ignition, no Multi-spark discharge or mags.

Stock cast iron or after market aluminum water pump.

One radiator stock brass or aluminum in front of motor. Metal Shroud to cover top 180 degrees of fan. Absolutely no anti-freeze in radiator. Two-quart overflow can mandatory.

Mini-Starter allowed. No reverse mounted starter. Must be able to start car.

Engine must be centered between frame rails. Chevrolet engine set-back to be measured as 33 ½" from top steering box mounting bolt to rear of engine and 15 ½" from steering box mounting bolt to #1 cylinder spark plug. Ford engine set-back is under review and will be published as an amendment. Crankshaft centerline can be no less than 7 ½" from bottom of front cross member.

#### **6.7 TRANSMISSIONS AND DRIVE TRAIN**

Steel blow proof bell housing only. Upper 270 degrees of bell housing must remain in tact.

Flywheel to be stock or after market aluminum. No Cut down flywheels allowed.

Any engine will be permitted to run a 7 $\frac{1}{4}$  inch, closed or open style, multi disc, clutch assembly, or converterless automatic transmission. Open style clutches, lightweight flex plates, and carbon fiber clutch components are prohibited.

Passenger car or light truck three or four speed unaltered manual transmission, automatic transmission, or aftermarket manual transmission only.

Automatic transmissions must remain in OEM stock appearing automatic case, with a functioning stock appearing pump. Original bellhousing must remain. Must have an approved scatter-shield or blanket. Scatter-shield may be constructed of quarter-inch by three-inch steel; 270-degrees around flex plate or flywheel.

Permitted aftermarket transmissions are Brin # BR170001, Falcon # win60100, Bert # berlmz, and Racegator # 140002. Aftermarket manual transmission must have aluminum case, with aluminum internal clutch. Internal clutches made of other materials (e.g. magnesium, composites, carbon fiber, etc.) are prohibited. Must bolt to steel, or aluminum, bellhousing. Must have approved scatter shield or blanket. Scattershield must be constructed of minimum of 0.25-inch by three-inch steel 270-degrees around flexplate. SFI approved scatter shield permitted. Must use full, steel, unaltered OEM or OEM replacement flexplate with stock type starter mounted in OEM location. Lightweight flexplates are prohibited. No coatings or paint allowed on transmission case.

Drive shaft to be steel, painted white, and have safety loop of minimum 1" x 1/8" thickness located within one foot of front U-joint. Minimum driveshaft diameter shall be 2" O.D.

Stock rear end for frame used or Ford 9" floater recommended. Limited slip rear ends (such as clutch type, torque sensing, and ratchets) are prohibited. Any combination okay so long as parts are steel. No aluminum parts except drive plates and spools. No off set. Drive flanges to be of equal distance on both sides of frame. No independent rear end (Corvette, Jaguar). Rear trailing arms must remain mounted in stock frame locations. Multiple holes permitted on rear housing brackets. Upper and lower trailing arm mount location must be in the stock location on the rear housing. Brackets must be uniform in their distance from the center of the housing. Housings that utilize brackets that are wider the trailing arms must have the trailing arms uniformly spaced. on both the sides of the car.

No gun drilled axles.

## **6.8 SUSPENSIONS AND STEERING**

Steering wheel to be quick release style. Center must be padded.

Stock steering box and linkage only. Steering quickener allowed. Steering shaft must have 2 U-joints or be collapsible style. Tie rod adjuster sleeve may be steel tube with steel jamb nuts. Outer tie rod end may be replaced with 0.625" or larger steel heim joint. No dropped or bent tie rods.

Stock metric lower "A" arms only in stock mounting positions. Stock unaltered metric spindles and rotors except Speedway Motors stock replacement gm metric replacement spindle part #

91034501-L , 91034501-R, and replacement arm # 34503-L AAND 34503-R, Also permitted is brake bracket #34504. Alterations permitted for wheel bolt pattern, and modifications to tie rod hole. No after-market or dropped spindles. One steel body, non-adjustable, unaltered shock per wheel, any mounting position except the rears must be mount to the rear axle. Rears may not be mounted to the control arms . No threaded body, front coil-over, air,through rod style or remote reservoir shocks. No Schrader valves or , unsecured gas refill ports. One or all shocks may be claimed per event for \$25 each plus the shocks from the claimer's car used in the A Main race. Claim must be made in accordance with the tracks procedures A Coleman hub may be used on the front only.

All A-frame, upper and lower ball joints, trailing arms, steering components and suspension mountings must remain stock for frame in factory frame position. Aftermarket trailing arms allowed as long as they conform to stock dimensions. Stock lengths for reference of trailing arms: Lower 19-1/4; Upper 11-1/8. Measured center to center.Configuration of trailing arms must be the same as a stock arm. No offsetting.All trailing arms must be of a solid one piece design, magnetic steel .

Stock dimension metric ball joints only.

Any O.E.M. type sway bar permitted.

Front upper control arm may be replaced with complete steel tubular drop in replacement one-piece control arm of stock length (8") plus or minus  $\frac{1}{2}$ " of stock length, using stock ball joints. NO aluminum components allowed.

Only stock rubber or neoprene replacement bushings allowed. NO OFFSET, SOLID METAL, OR BEARING TYPE (MONO BALL) ALLOWED.

## **6.9 BRAKES**

Four-wheel foot operated hydraulic brakes in working order. Dual master cylinder allowed. Limiting or proportioning valves permitted. GM Metric frames must use unaltered GM Metric calipers only. No aluminum, after market caliper replacements.

## **6.10 FUEL AND TANKS**

Pump gas or E85 only allowed. No methyl alcohol, coloring agents, or additives. Only petroleum-based unleaded or leaded gasoline and E85 as defined by the American Society of Testing and Materials (ASTM) is permitted. Higher octane fuels can cause higher operating temperatures and reduce the running life of your engine. The only oxygenates permitted are MTBE and ethanol alcohol at a maximum amount of 10% by volume. Unified Grand National officials ***reserve the right to require all cars use the same brand and designated grades of gasoline in a given event.*** The specific gravity must read from .710 to .780 at 60 degrees Fahrenheit, factored by a specific gravity temperature chart.

Unified Grand National officials have the ability to conduct laboratory analysis of fuels. Samples for lab analysis may be taken from a competitor's fuel tank at any time at the discretion of the Unified Grand National Technical Inspector. If samples are taken, competitors must identify the specific brand of fuel they are utilizing.Any sample must meet the dielectric constant for the

declared brand of fuel being used. FUEL WITH AN OCTANE RATING IN EXCESS OF 110 WILL BE CONSIDERED ILLEGAL. The use of scent masking agents is not permitted and will be considered a fuel violation.

***The specific elements which will be searched for include:*** propylene oxide, alcohols (all types), aldehydes, aminodiphenyl, benzene (in excess of EPA limit), benzidine, beryllium compounds, bromine compounds, butadienes, chlorinated compounds, chromates, dioxanes, ethyl acrylate, ethylene oxide, hydrazine compounds, methylene dianiline, naphthylamine, nitrogen compounds (nitromethane, et al.), styrenes, toluidine and xylidine. Also added to this list will be substances deemed to exceed the Threshold Limit Values (TLV) or Biological Exposure Indicies (BEI) as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Any competitor (driver and/or owner) caught using any of the illegal fuel additives as previously mentioned is subject to penalties provided in 4.4.5

Approved fuel cell to be enclosed in 22-gauge sheet metal with 2 straps in both directions. Straps to be 1" x 1/8" steel. Ground clearance of 10". Fuel cell protection bar on the bottom (as low as fuel cell). Fuel cell protection bar must be as wide or wider than fuel cell . Minimum of 1 1/2" x 0.065 Wall tubing fuel cell hoop with two or more braces to frame. Fuel cell to be filled from top and have approved cap. No fuel lines in driver area.

stock style fuel pump in stock location. No electric or belt drive pumps.

No bottom draw fuel cells. Outlet must be on top.

The fuel cell breather or vent must have a one-way check valve to prevent spillage in case of a rollover.

## **6.11 BUMPERS AND PROTECTION BARS**

Stock bumpers may be reinforced; ends must be strapped to fenders. Must have both bumpers to race. Radiator protection bar may be no higher than the front of the hood or exceed 8" above the frame rail and no wider than the frame rails and may not extend beyond the front of the bumper. Trunk protection bar no higher than rear of trunk lid. Protection bars to be 1 3/4" x 0.095 wall round tubing or smaller. Side protection bars to be no larger than 1" x 0.095 wall square tubing with the ends capped at 45-degree angle.

All cars must have a loop, hook or other provision, painted white, in the centerline of the front and back, behind the bumper line for the wrecker to hook on to.

## **6.12 WHEELS AND TIRES**

Racing steel wheels of 8" maximum width. Bead locks are allowed on all right side wheels only. Foam type, aluminum, or plastic disc mud plug allowed.. Plastic and aluminum disc mud plugs must have car number. Magnetic steel bolt on style, mounting hardware required .No dzus mounting allowed. Mounting tabs must be integral or welded to the wheel.

1" hex magnetic steel lug nut mandatory. Studs must pass through lug nut completely.

Hoosier "E-MOD RC-4" or unaltered Hoosier Race tire, G60-15 with IMCA stamped on sidewall tires only. Approved tire sizes are 26.5-8.0x15 and 27.5-8.0x15. No grooving, sipping, or softening allowed on the RC4 tire. IMCA PLATED TIRE MAY BE STRAIGHT SIPED ONLY. Tire reconditioning permitted. Reconditioning to be done with 16 grit or finer fiber disc only. Metal disc prohibited. Subject to the approval of Unified Grand National officials. .

### **6.13 ELECTRICAL**

12-volt electrical system only. One 12-volt battery only, which must be located behind driver area and securely fastened, with the positive terminal covered. On/off and start switch to be clearly marked in driver area and easily reached by driver and safety crew. It is recommended to have a main battery kill switch. No lithium batteries allowed

### **6.14 WEIGHTS**

Weights to be bolted securely and painted white with car number and division on each weight. Weights must be within the body and below the upper most door bar. No aluminum clamp on weight mounts. Loss of weight during a race will disqualify driver from race. No weights in driver's compartment allowed. Added weight (ballast) may be steel or lead. All weights must be securely attached for inspection. Loose weights are prohibited. Added weights must be painted white and have car number on each piece. Weight must be secured by no less than two  $\frac{1}{2}$ -inch bolts. The maximum spacing between bolts is 10 inches. Individual weights shall weigh no more than 50 pounds. No weights may be added outside the body or inside driver's compartment. Weights added behind the rear end shall be no less than 12 inches above ground.

### **6.15 DRIVER'S SAFETY**

A, full face, helmet and face shield that meets SA2010,SA2015 Snell Foundation or SFI 41.1/ or higher specification is mandatory. It is recommended that a driver wear a SFI fire retardant head sock and underwear (Mandatory for driver under the age of 18).

SFI approved fire/.driver suit mandatory. May be two piece suit. Neck collar optional. Drivers not wearing a neck collar will be required to wear a fire retardant head sock. Condition of suit subject to sanctioning track Officials approval. Fire retardant gloves required any time car is on the track. SFI Fire retardant racing shoes or leather shoes with fire retardant socks are required.

### **6.16 IMCA STOCK CAR CROSS-OVER RULE**

IMCA Stock Cars must run IMCA Stock Car rules with the following exceptions: May utilize the rc4 Hoosier tire. There is a max. of 4 week limitation on the crossover. After 4 weeks, they must meet all the grand national rule requirements.

