

# V.R.O.A. 2013

## Technical Rules

### **1. ELGIBILITY**

Races are open to all models of pre 1948 American and Canadian closed cars. Original metal bodies only. Pickups, Station Wagons, Convertibles and Roadsters are not eligible.

### **2. FRAME RULES**

1. The only legal frame accepted by the V.R.O.A. will be the V.R.O.A. tube frame. It must exactly follow the specifications outlined in the back of the book.
2. Entire frame must be 2" x 3" x .100" minimum ID wall thickness rectangular steel tube up to builder's choice, including mandatory cross-members, but not optional cross-members. The 2" x 3" must be upright.
3. Because of manufacturers thickness tolerances, there will be a 10% undersize allowance in frame and roll cage thickness specifications.
4. Front and rear builder's choice must be 2" x 3" rectangular steel tube, .100 minimum thickness; including the cross members.
5. Cross members must be full width of frame and added to the end of builder's choice rails.
6. Optional second cross member may be manufactured out of any type steel material.
7. Builder's choice may be drilled to provide crush zone, but not cross members.
8. Mainframe rails may not be pierced, drilled or otherwise altered for the purpose of reducing weight. The only holes allowed are for component attachment only.
9. Frame rails must be straight between front and rear builder's choice areas, as outlined in the back of the book. Frame rail must not be altered in anyway, within 12" of kick up.
10. Minimum ground clearance is 5.0" to bottom of 2"x 3" frame rails, including builder's choice, measured with the driver in the car. Car will be checked in race ready condition during a Pre and/or Post Race Event inspection.
11. Maximum offset on all cars to be measured from back of vertical rim bead to surface of frame rail. (Measured with left front wheel perfectly parallel to frame.) Difference in measurement from side to side may not exceed 3" and you must provide access to measure.
12. Cowl may be cut back to original hood line. Firewall must be within 15" of rear of engine measured straight back from rear center of block. Firewall may not extend forward past front edge of front cowl, except for the foot box. Firewall must be made of sheet metal (min. 20 gauge), and it must completely separate driver from engine compartment.
13. Rear firewall must be 20 gauge metal and it must completely separate driver from gas tank compartment.
14. Floor must be closed in to the sides of the body from front to rear firewalls. May be done by installing sidewall liners up roll bars across to window frames. Maximum height of floor, measured above top of transmission is 6".

15. Cars must be properly painted, including frames and roll cages and numbered within two weeks from the original appearance at track, or after sustaining damage, and maintained in proper condition for the remainder of the year.
16. Numbers must be minimum 18" high by 2" thick and must be on each side and on the roof facing the outside of the track. Numbers must be a contrasting color to the rest of the car.
17. Minimum height from the ground to the highest point of the natural body is 54.5", measured with the driver in the car.

### **3. BODY RULES**

1. Bodies must be centered on frame rails. A tolerance of 1" is allowed.
2. No chopping of tops.
3. No sectioning of bodies. Trunk may be shortened and must retain the original contour.
4. No spoilers.
5. No wings.
6. No fenders, outside of body.
7. No air dams.
8. Grills allowed, but no die cast grills.
9. Nothing in front of radiator except grill and air scoop to move air into radiator. Air scoop must not extend past front crash guard and be no wider than inside of frame where mounted.
10. No side or rear windows to be enclosed with anything, fully or partially.
11. Left side window opening may be cut and hinged for easier entry/exit, but must appear as per original dimension when closed. All other window openings must appear as per original dimensions.
12. Louvers allowed on hood and side panels only, forward of front firewall.
13. Body sides flat and solidly attached and must extend to bottom of frame rails.
14. Body must be minimum 4" off ground everywhere including maximum 3" high and 3" wide body extensions. Front scoop metal must be minimum 3" off ground.
15. Maximum 1/4" air gap allowed on hood and trunk lid.
16. Maximum rake (body angle) to be 6 degrees. Measured on side window with frame rails level (0 degrees).
17. Rear end of body must follow contour of body until it ends. This means either 1) the original contour to the point where the body was cut off or 2) the original contour the car had to the end (tail) of the body. No upward curved spoilers may be added to the end (tail) of the body. Rear end of body must extend down to meet rear frame rails. Rear end of body must be completely closed in with sheet metal. Rear deck filler panel must be 90 degrees to the frame rail and must be completely closed in from body to cross-member and from body side panels (no holes). If a hinged panel is used in the rear for access to the trunk area, the panel must be fastened when car is on the track.
18. All body panels, including roof inserts, must be made of sheet metal and must be minimum 20 gauge thickness. Roof hatches are allowed, but they must be hinged in the front, and be able to be opened from inside and outside of car.

19. All cars must be equipped with a metal hood securely fastened. The hood must extend from outer edges of cowl and radiator and go far enough forward to cover the top of the radiator.
20. Hood scoop must be made of metal and it can be full length of hood. Maximum 18" diameter air cleaner. Scoop can not be any wider than 2" on either side of air cleaner, and can not be any higher than 1" above air cleaner. Scoop must be flat on top with no flaring to direct air over roof. Hood scoop must not impair driver's vision.
21. A clear lexan windshield is compulsory from top to bottom of windshield opening and be full width of windshield opening in front of driver. Lexan must be at least 1/8" thick. No window tints allowed. Window lexan must be replaced every 3 years.
22. No mirrors of any kind will be permitted for use by veteran drivers. One 3" mirror mounted on the left pillar will be allowed only for rookie drivers first year only.
23. (All VROA members racing in VROA sanctioned events must display all club sponsor decals in order to receive points; points fund payout, and payout for the race event. If at all possible, decals must be displayed in the preferred designated area of the car as per the diagram attached to the rule book. If it is not possible to display the decals in the preferred area, they must be displayed on both sides of the car in a visible location.)

#### **4. WEIGHT RULES**

1. Minimum weight of car and driver after any race shall not be less than 2300 lbs. Left side weight shall not exceed 60% of total weight. Weighed with the driver in the car.  
**No adding of fuel before weighing.**
2. Ballast weight must be directly and securely attached to the sides or top of the main frame rail or major cross member structure, not the sub frame. All ballast must be inside of body panels. No lead shot or liquid type ballast permitted. All ballast weights must be painted white, with car number painted in red or black. Any car losing ballast on track will be disqualified.

#### **5. ROLL BARS, CRASH GUARDS AND SEAT**

1. Minimum roll cage requirements are as per attached drawings in the back of the book.
2. All bars in the roll cage must be minimum 1 3/4" O.D. round tubing and must be .090" minimum wall thickness roll cage tubing. Three left side door bars must be as per drawing. Three left side horizontal door bars to be bowed outward. Right side must have three door bars as per drawing in back of book. Driver's helmet must be below bottom of all roof bars.
3. Because of manufacturers thickness tolerances, there will be a 10% undersize allowance in frame and roll cage thickness specifications.
4. Left side door bars must be plated with a minimum 1/8" thick plate, totaling 200 square inches. Plate must primarily protect driver's torso area.
5. "X" in between the frame rails must be made of 1 1/2" minimum tubing, .090" wall thickness.
6. All 90 degree joints in main cage must have gussets. Triangulated joints may be exempted at tech committee's discretion. Gussets must be minimum 1 1/2" x .090" thick.

7. Electric welding only on frame and roll cage. No angle iron allowed in driver's compartment.
8. Crash guards are mandatory front and rear. Front crash guard must be mounted a minimum of 3" ahead of front cross-member to provide a crush zone. Must be constructed of steel or aluminum tubing. No sharp corners or rough edges allowed.
9. Crash guards must be flat across. No bowed crash guards. Top and bottom bars must extend the same distance from the cross-member and must be parallel. Optional crash guard (NASCAR Modified type) allowed. No crash guards or nerf bars to be filled in with any type of panels.
10. Crash guards must be a minimum of 12" and a maximum of 14" from top to bottom. Center must be 12" to 16" from ground and must have at least one vertical bar.
11. Rear crash guards may extend to ½ of rear tire width but must be at least width of chassis at rear cross-member. All rookie drivers must have at least one bar on rear crash guard painted bright yellow. No other cars to have yellow crash guards.
12. \*\*\*Front crash guards to be no wider than chassis at front cross-member. Exception on four spring cars, crash guard may be as wide as outside of spring perch. Maximum distance from center of right king pin to the front of the front crash guard must not be more than 32". Ends of both front and rear crash guards must be tied back into the chassis with steel, flat bar or tubing, minimum 1" x 1/8", or tin straps or thin rods. Must be fastened solid at each end.
13. Nerf bars must not extend past outside edges of tires. Compulsory between front and rear wheels. Nerf bars not allowed in front of front wheels.
14. An approved racing seat must be securely fastened to the cage or frame at bottom and backrest. Seat must have a padded headrest. Aluminum seat is mandatory, .125" thickness. Seat must be mounted above 2" x 3" frame rail.
15. The seat must also have double head restraints (right & left), on each side of the driver's seat.
16. \*\*\*All bars in potential contact with the driver's body must be covered with fire retardant (made for racing roll bar) padding. If running a door liner on left side, sheet padding is recommended. Center of steering wheel must be padded.

## **6. STEERING, BRAKES AND STARTER**

1. Any regular type steering box may be used but column must mount to the left of dash center. No center steering boxes. Power steering allowed. Rack and pinion is allowed. All steering parts must have 3" ground clearance. Welds on any steering parts must be properly reinforced.
2. Dual brake system is required. Four-wheel brakes must be in good working order. Any type brake system allowed. No power brakes.
3. Cars must be equipped with a self starter in working condition.

## **7. SUSPENSIONS**

1. Maximum wheelbase is 118"
2. Number of springs and suspension styles: Either two transverse springs or four parallel springs only. No combinations allowed.
3. No auxiliary suspension of any kind allowed. (1/4 springs, coils etc.)
4. No independent suspensions.

5. No onboard driver controlled suspension or weight adjustments allowed.
6. Only one welded steel body shock per wheel (Non rebuild-able, re-valve-able, or take apart)
7. Load bolts and sway bars may be used.
8. No slider springs allowed. (Either end or center). Birdcages are allowed.
9. Adjustable spring shackles allowed. As per diagram in back of book.
10. Load adjusting shackle brackets as per drawings only.
11. All springs will have standard or bolted eyes on both ends of the spring. Leaf springs must be mounted to V.R.O.A. 2"x 3" tube frame cross-members or optional cross member tube only, not to sub frames.
12. Leaf springs to be made of steel.
13. Dropped, straight axles only. No twin I-beams. Aftermarket axles allowed. Only 2 axles are approved at this time. Must be 54" maximum king pin to king pin center with 4" drop. 1/2" tolerance on drop for adjustment. Drop measured from top of king pin boss to top of 2" O.D. axle tube. Tubing for axles to be steel 2" O.D. with 3/16" or .188-wall minimum thickness. Seamless tube recommended. No square tube axles allowed.
14. Spring pocket under driver's seat to be covered by 1/8" plate.
15. Four Spring cars: can mount the front axle above or below the leaf spring.
16. The axle that uses the bolt on stubs that the king pins are inserted into must be made from 2" round tubing and must be inserted into a hole drilled into the plate and welded on both sides. They must not be butt welded to the plate. Must have tethers
17. Shocks will be limited to a welded steel body shock, one per wheel. (see # 6 above)

## **8. FUEL SYSTEM AND FUEL**

1. Fuel cell mandatory. All cells must have an approved vent with a check valve.
2. Cell must be mounted behind rear firewall and inside perimeter of frame rails. Cell cap must be clearly visible and easily accessible to crew members and Tech officials.
3. Cell must be completely enclosed in a metal container and securely fastened. Safely and properly protected. Cell cap must be tethered.
4. All fuel lines must run under the floor pan of the car and be properly secured. Braided or solid gas lines recommended. No copper lines
5. Only metal fuel filters allowed.
6. Fuel- Gasoline only.
7. Only braided or solid fuel lines, connected by threaded ends, allowed from the fuel pump to the carburetor except for a 4" max of neoprene for connections.

## **9. CARBURATION AND EXHAUST**

1. Any cast iron or cast aluminum intake manifold that is un-altered on the outside with the exception of modifying the base will be allowed. No fuel injection type of manifolds allowed. Original two barrel manifolds can be used.

2. Any Holley Type stock two-barrel carburetor allowed. All carburetors must have two throttle return springs. All cars must be equipped with an intake air filter or flame arrestor. All gas pedals must have toe hook. No braided cable gas peddles.
3. No supercharging or injecting devices allowed.
4. No electric fuel pumps. No pumps with glass bowls.
5. \*\*\*Exhaust systems:
  - a. Top of any outlet must not be more than 18" from ground.
  - b. Mufflers mandatory. (Db level cannot be over 100 decibels)
  - c. Header plate may be used, maximum thickness 1/2".
  - d. The exhaust on the right hand side has to be dispensed away from the driver with turn outs. The left hand side must go back equal to the driver and turn out. Anything underneath is fine.

## **10. IGNITION**

1. Battery must be securely fastened in engine or trunk compartment only. Battery cables must be properly secured.
2. Any ignition system allowed except Magneto's.
3. Ignition kill switch must be mounted in the center of the dash and must be clearly marked. Off must be in or down.

## **11. ENGINE**

1. Only inline six cylinder overhead valve engines allowed. Cast iron blocks and heads only. Maximum displacement allowed is 255 cubic inches, including clearance and wear.
2. Different makes of OEM engines to a different make of OEM transmission will be allowed.
3. Engine location: Maximum allowable distance for setback of engine is measured from center line of king pin measured back to the number one spark plug and is 13". Maximum allowable distance down to center of crankshaft from a line across the top of the frame at the crankshaft bolt is 5". Engine must mount vertically within 10 degrees of OEM position. Chrysler to be in OEM position. Maximum offset from center is 2".
4. The only engines allowed are listed below with their respective crank strokes.
  - Chevrolet 230 cu in 3.250" stroke
  - Chevrolet 250 cu in 3.531" stroke
  - Ford 240 cu in 3.180" stroke
  - Ford 250 cu in 3.910" stroke
  - Chrysler 225 cu in 4.125" stroke
  - AMC 232 cu in 3.500" stroke
  - AMC 243 cu in 3.410" stroke
5. Only production crankshafts for make and model of engine being used are allowed. No aftermarket crankshafts at all, no custom forged or billet crankshafts. Only original stroke allowed as listed above, no stroke changes at all. All dimensions must be + or - .005" tolerance.
6. The only engines allowed are listed below.
  - Chevrolet 230 cu in
  - Chevrolet 250 cu in
  - Ford 240 cu in
  - Ford 250 cu in

Chrysler 225 cu in  
AMC 232 cu in  
AMC 243 cu in

7. Any type piston allowed.
8. \*\*\*Any camshaft allowed except roller cams and roller lifters. No overhead cams allowed. (No Mushroom style lifters allowed)
9. No dry sump systems. No external drive oil pumps allowed. A remote oil filter is allowed. Approved pressurized surge tank is allowed (Moroso style) must be securely mounted.
10. Use of oil coolers will be allowed.

## **12. CLUTCH AND TRANSMISSION**

1. Commercial aftermarket steel blowout proof bell housing mandatory. Bell housings can be modified but must be plated with 1/4" steel so all openings are covered. No aluminum or alloy bell housings.
2. Stock flywheels allowed. Aluminum flywheels allowed. Automatic transmissions flex plates allowed.
3. Clutch must work and be foot operated. Any size or type of clutch allowed. No couplers.
4. Three or four speed aluminum or cast OEM allowed. Reverse must work. No transmissions with internal clutch. No overdrive units. No in and out boxes.
5. Quick change and automatic transmissions will be allowed.
6. The use of a different make of OEM transmission used with a different make of OEM engine will be allowed.

## **13. REAR END AND DRIVESHAFT**

1. Any center section allowed with steel or aluminum axle tubes. Floating rear ends allowed.
2. Any make rear end allowed in any car.
3. All drive shafts must be constructed of steel or aluminum. All drive shafts must be painted white and numbered.
4. All cars must be equipped with a full 360-degree driveshaft loop 3" to 6" behind front u-joint. Must be made of 3/16" by 1 1/2" plate or equivalent. Rear loop is highly recommended.
5. Locker type differentials can be used.
6. Quick change rear ends will be allowed.

## **14. TIRES AND WHEELS**

1. All cars must use 5 lug wheels only.
2. All four wheels must be approved commercially manufactured steel wheels. No OEM wheels. No uni-lug wheels.
3. Rims may be reversed.
4. Minimum offset to wheel center from inner edge (Back Spacing) of wheel is 2".
5. Maximum width for all wheels is 8".
6. Commercially sectioned wheels allowed.

7. \*\*\*Tires must be used as per club specified.

The tires are:

- 1.) Hoosier 970
- 2.) Treaded IMCA (Canadians Use)

Absolutely no tire soaking of any kind will be allowed.

Tires will be checked at races with a durometer to monitor and determine hardness. The minimum durometer reading will be set at 45.

### **15. COOLING SYSTEM**

1. Any type radiator may be used providing it is not higher than the hood or wider than frame where mounted. Hood must completely cover top of radiator.
2. Radiator must be fastened at front of car. Auxiliary coolers are permitted inside crash bars within center of wheelbase forward, but not within the driver's compartment.
3. No antifreeze in cooling system.
4. Cars must have a catch or overflow can and this should be drained before each race. Can must be located forward of front firewall and cannot be vented anywhere behind front firewall. Steam from the vent must be visible to the driver.

### **16. MANDATORY SAFETY EQUIPMENT**

1. Driver must have a helmet that is no less than 2005 Snell Foundation SA rated Helmets will be inspected and must have sticker. Helmets need to be updated within the five year published Snell Foundation ratings.
2. Full face helmet is recommended.
3. Three inch wide made for racing seatbelts with double shoulder harnesses must be used. They must have a quick release. Grade 8 bolts recommended with locking nuts. Crotch strap required. No belts will be older than 5 years. Belts must have date.
4. S.F.I. approved P.B.I. or Nomex designed for racing fire suits are mandatory. No Proban fire suits. Suits must be in good shape and should be clean. Fireproof underwear and socks mandatory if single layer suit is used. Double layer suit is recommended. S.F.I. approved racing gloves, shoes, and neck collars or helmet restraints are mandatory.
5. Fire extinguishers are mandatory in the cars. Minimum 2 ½ lbs. Must be mounted safely. Must have gauge. Must be in drivers reach. Onboard systems accepted. If extinguisher gauge is empty or reads out of green zone car will not be permitted to run.
6. A Fire extinguisher is also required at each pit crew site. A minimum of a 5lb. fire extinguisher that is accessible at all times. (Preferable placement is at the rear of your trailer)
7. Driver's window nets are mandatory at drivers' head. Must hook at top and release closest and /or easiest for the driver to reach.
8. Becker Bar/Cable Must be at least ø1" .090 wall tube with gussets if bar is over ø1" .090 wall gussets will not be needed. Existing cars may use a Minimum of a 1/4" cable wrapped around the cage tubing at both ends and secured with two cable clamps at both ends. Bar/Cable must be centered with the dash bar and attach perpendicular at the halo bar.
9. Double head restraints on each side of the driver's seat.



## 17. **RULE MODIFICATION GUIDE**

1. There is a form available from the Technical Committee that must be filled out for all rule change requests. All of the requests will be reviewed by the technical committee then purposed to the club at the end of the race season. All safety issues will be reviewed immediately.

(Rule request forms can be obtained when to you want to add, change, or delete any rules. But this does not nullify your right to bring a proposal up at a meeting when it occurs to you at that time. Request forms are designed for your pre – thought and explanation of your subject matter for better presentation, and review by any committee that may have to review it.)

**Infractions of the rules may be handled with weight penalties or disqualification based on the Technical Committees decision. The Executive Committee will handle any protests, of the ruling.**

*Anything not specifically covered in these rules is NOT considered legal. This book supersedes anything that was considered legal in the past. The Tech Committee will rule upon any interpretation and intent of these rules.*