

# 2020 CHARGER RULES

## 1.0 - ENGINE/CARB/WEIGHT COMBINATIONS

ENGINE	CU IN	WEIGHT	R/S WEIGHT	CARB	PLATE
GM Built	350	3100	1400	350	3/4" max
Ford Built	351	3100	1400	350	3/4" max
Dodge Built	360	3100	1400	350	3/4" max
GM 602 Crate	350	3100	1400	500	OCS Track Spacer
GM 603 Crate	350	3100	1400	500	OCS Track Spacer
Ford 347JR Crate	347	3100	1400	500	OCS Track Spacer

### 1.1 – WEIGHT PENALTIES

1. 50 lbs. must be added to the right side when gas pressurized shocks are used (*see section 7.1*)
2. 25 lbs. must be added to the right side when 5 1/2" racing clutch is used (*see section 5.1*)
3. 25 lbs. must be added to the right side when LMSC style angle plug head engine is used (*see section 4.1.2*)

## 2.0 - GENERAL

The OCS Charger class is for old style LMSC chassis and components. This will be enforced closely in order to retain the integrity of this class. If you want to run new chassis and lightweight parts, this class may not be for you.

1. Metric frame cars may remove 25 lbs. total weight and must retain 45% left side weight
2. Built engines with 350 CFM carburetors may run a 3/4" spacer plate
3. Crate engines with 500 CFM carburetors must run OCS track spacer plate
  - a. Note: New style Holley 500 CFM "Ultra XP" carburetors not allowed

## 3.0 - CAR BODIES

### 3.1 - GENERAL

1. All cars must have a complete body
2. All car bodies must be acceptable to OCS officials
3. Aftermarket composite and fiberglass bodies will be allowed. Doors must be steel or aluminum
  - a. Note: New "Gen 6" style LMSC bodies will NOT be allowed
4. All body panels must be attached in a manner acceptable to OCS Officials
5. Minimum roof height is 48" measured 10 inches back from center of windshield
6. Full front and rear windshield required
7. Windshields must be minimum 1/8" Lexan clear polycarbonate
8. Clear Lexan or plexiglass may be installed in the rear quarter windows. No side windows
9. Minimum of 4" ground clearance on all body panels, side skirts, and bumper covers



### 3.2 - SPOILER

1. Spoiler must not be over 5 inches in height
2. Spoiler must be the same width of the deck lid
3. Spoiler must be securely mounted at the rear of the deck lid
4. Spoiler must maintain a 50 to 60 degree angle
5. Spoiler side panels not permitted

### 3.3 - BUMPERS / BUMPER COVERS

1. Bumper covers must be acceptable to OCS officials
2. Front and rear bumper cover reinforcement bars must be installed
3. Steel reinforcement bumper bars must be a minimum of 1 ¼ inch OD and a minimum of 0.083-inch wall thickness

## 4.0 - ENGINES

### 4.1 - BUILT ENGINES

#### 4.1.1 – GENERAL ENGINE CHARACTERISTICS

1. Only standard production allowed. GM 350 cubic inch maximum, Ford 351 cubic inch maximum, and Chrysler 360 cubic inch maximum
2. Engine may be interchanged within manufacturer only
3. Engine may be balanced
4. Steel racing oil pan permitted
5. No windage trays in the oil pan
6. No polishing or painting allowed inside of the block
7. Maximum of .060 overbore permitted
8. Four bolt main block permitted with stock caps only
9. Aluminum and aftermarket pulleys allowed

#### 4.1.2 - CYLINDER HEADS

1. Cylinder heads must remain stock for make of the engine
2. Stock production steel heads only
3. Maximum valve size intake 2.020" and exhaust 1.625"
4. No necked down valve stems
5. Maximum valve spring wire size is .188 inch
6. No cutting of the head for large valve springs
7. Poly locks permitted on rocker arm studs
8. Screw in rocker arm studs permitted
9. No angle cut heads permitted
10. All casting numbers must be retained and unaltered
11. No modification permitted including porting, polishing, grinding, or port matching
12. A three-angle valve job per Late Model Stock rules allowed
13. Combustion chamber minimum of 62cc's
14. Angle plug heads (LMSC style) allowed. If angle plug heads are used, 25 lbs. must be added to right side

#### 4.1.3 - INTAKE MANIFOLD

1. Only the following Edelbrock aluminum intakes will be permitted. GM #2101, Ford with 4bbl heads #2665, Ford with 2bbl heads #2750, Ford Windsor #2181, and Chrysler #2176
2. No porting, polishing, or gasket matching will be allowed
3. No other modifications allowed



#### 4.1.4 - CRANKSHAFT

1. Stock crankshaft with stock stroke must be retained
2. Crankshaft casting numbers must not be removed
3. Crank journals may be ground for undersize bearings only
4. Minimum crank weight will be 50 pounds
5. No other machine work allowed
6. Crankshaft minimum height is 12 inches

#### 4.1.5 - RODS

1. Forged connecting rods only
2. No polishing or machining allowed

#### 4.1.6 - PISTONS

1. Pistons must not extend above the deck of the block 0.000 deck
2. Flat top or dish pistons only
3. Aftermarket pistons may be used; however, the piston must match the stock piston including piston rings, wrist pins, and skirts
4. No part of the piston may be altered to reduce weight
5. Piston and rod minimum weight will be 1200 grams.

#### 4.1.7 - CAMSHAFTS

1. Camshafts must be magnetic steel
2. Cam and lifters will have a maximum lift of .500
3. Roller rocker arms allowed

### 4.2 - CRATE ENGINES

#### 4.2.1 – GENERAL ELIGIBILITY

1. The following crate-type engines will be permitted and must be used as supplied by the manufacturer and/or per the specifications manual provided by the manufacturer:
  - i) General Motors #88958603
  - ii) General Motors #88958602
  - iii) Ford S347JR
2. Crate motor technical specifications will be based on the following manuals:
  - i) [GM Performance Parts Circle Track Crate Engine Technical Manual – Revised May 2010](#)
  - ii) [Ford Racing 347 Series Sealed Racing Engine Sanctioning Body Specifications Handbook](#)

### 4.3 - GENERAL ENGINE RULES (ALL ENGINES)

#### 4.3.1 - CARBURETOR GENERAL ELIGIBILITY

1. Holley 350 CFM 2-barrel carburetor (HP Part# 0-7448 or 0-80787-1) may be used on the following built engines:
  - i. GM Built
  - ii. Ford Built
  - iii. Dodge Built
2. Holley 500 CFM HP 2-barrel carburetor (HP Part# 0-4412C or 0-80583-1) may be used on the following crate engines:
  - i. General Motors #88958603
  - ii. General Motors #88958602
  - iii. Ford S347JR



3. Any carburetor that tries to pull air from anywhere other than through the venturi will be ruled as a non-approved part resulting in disqualification

#### 4.3.2 - CARBURETOR SPACER PLATE / GASKETS

1. A one-piece solid aluminum spacer plate with a maximum thickness of .750 inch may be used with the 350 CFM 2-barrel carburetors. Spacer must have two centered holes with 1 ½ inch openings that match the base of the carburetor
2. Only the OCS supplied track spacer plate will be allowed on all 500 CFM 2-barrel carburetors
3. The spacer must be centered on the intake manifold
4. Tapers, bevels, or any other modifications are not allowed
5. A one-piece gasket with a maximum thickness of 0.065 inch must be installed between the carburetor and the spacer plate
6. A one-piece gasket with a maximum thickness of 0.065 inch must be installed between the spacer plate and the intake manifold
7. As with the carburetor, any plate or gasket that allows air into the plenum area will be ruled a non-approved part resulting in disqualification

#### 4.3.3 - IGNITION SYSTEM

1. **MSD boxes are allowed**
2. No more than two ignition boxes/components allowed on a car (**Ex. You may run a MSD box + amplifier, or a MSD box + external rev limiter controller, but not all three**). Note: Ignition coil and standard rev limiter "chips" will not count as one of the boxes.
3. No stacking boxes
4. No extra wires allowed in the MSD wire harness
5. Ignition boxes must be mounted to allow for inspection

#### 4.3.4 - ELECTRICAL SYSTEM

1. Starter must be in working order
2. Battery may be relocated but must be bolted down securely and covered or placed in a battery box
3. Only one 12-volt battery permitted
4. HEI distributor permitted
5. No ignition boosters or crank trigger ignition allowed
6. Ignition firing order must remain stock for engine make

#### 4.3.5 - AIR CLEANER

1. Round air cleaner a minimum of 12 inches and a maximum of 17 inches in diameter permitted
2. Top and bottom of the air filter must be the same size
3. Element must be a minimum of 1.5 inch and a maximum of 4 inches in height
4. Paper element only, no cloth permitted
5. No tubes, funnels, or anything else that may direct air flow allowed inside air filter housing
6. No shield around the air filter will be permitted
7. Base of the air filter housing may not exceed the top of the carburetor choke horn

#### 4.3.6 - COOLING SYSTEM

1. Aluminum radiators permitted
2. Antifreeze not permitted
3. Electric fans are permitted
4. Radiators must be stock appearing and installed in the stock location
5. All air to the engine must pass through the radiator. No ducting or directing air to the carburetor allowed

#### 4.3.7 - EXHAUST

1. Single flange tube headers permitted
2. Maximum tube size is 1 5/8 inch
3. No wrap around or 360-degree headers



4. OEM stock cast exhaust manifolds permitted
5. Exhaust collectors and exhaust pipes must not exceed 3 inches OD
6. All exhaust must exit under the car and behind the driver
7. No thermal wrap permitted

## 5.0 - DRIVELINE

### 5.1 - TRANSMISSION AND FLYWHEEL

1. Three or four speed stock type transmissions permitted. All forward and reverse gears must be in working order from the driver's seat of the car
2. No lightweight transmissions
3. All clutches and pressure plates must remain stock type
4. No drilling or lightening of the clutch or pressure plate allowed
5. Clutch disc without springs recommended
6. Stock clutch minimum dimensions are 10 ½ inches
7. Racing type clutches (5 ½ inch and 7 ¼ inch) are allowed. If 5 ½ inch clutch is used, 25 lbs. must be added to right side
8. No aluminum clutch flywheel components allowed
9. Steel bell housing or scatter shield required
10. Hydraulic clutch slave system may be used to operate clutch

### 5.2 - DRIVESHAFT

1. Driveshaft must be painted white
2. Driveshaft must be magnetic steel only
3. Minimum OD of driveshaft will be 2 ¾ inch
4. Two magnetic steel safety straps must be installed, one at the front of the driveshaft and one at the rear. Straps must encompass 360 degrees on the driveshaft

### 5.3 - REAR END

1. Stock rear ends allowed. 10 and 12 bolt rear ends, Ford 8 ½ and 9 inch allowed
2. Quick change rear ends allowed
3. Differentials may be locked. Detroit locker or limited slip
4. No Torsions, Gleason's, Gold-Trac, etc.
5. Floating type rear ends allowed
6. Metric cars may have adjustable coil spring spacers
7. Leaf spring cars may have a maximum 3" adjustable lowering blocks and adjustable spring shackles at the rear
8. No horizontal leaf springs "Sliders" allowed
9. Front of the leaf springs and trailing arms must remain in the stock location on frame and unibody
10. Reinforcements of the front mounting locations allowed but must remain in the stock location and be nonadjustable
11. Rear trailing arms must be stock appearing for make and model
12. Mono ball permitted
13. Left and right must be the same length
14. Cars with factory panhard bar must be stock appearing
15. No cambered or toed rear ends allowed

## 5.4 - WHEELS

1. Maximum width is 10 inches
2. Steel wheels only
3. Air bleeders not permitted
4. Offset must be the same on all 4 wheels
5. No welding allowed on the wheels

## 6.0 - CHASSIS / FRAMES

### 6.1 - GENERAL

1. Old style LMSC frames only
2. No offset allowed on the frame
3. Tubular non-adjustable magnetic steel upper A-arms allowed
4. Lower A-arms must remain unaltered except to mount shocks and sway bars
5. Spindles must be the same left and right
6. Truck arms must be the same length
7. The front of the truck arms may have a maximum difference of 1 ½ inch from parallel
8. All suspension parts must be magnetic steel
9. Frame rails must be parallel to each other
10. Kick outs on the front clip must be the same length
11. A maximum of 1 ¾ inch difference allowed in the mounting of the rear track bar measured from the ground to the center of the mounting bolt
12. Maximum OD of the front sway bar is 1 ¼ inch with factory markings
  - a. Note: There will be a maximum acceptable tolerance of .050 - i.e. 1.300 maximum OD

### 6.2 - WEIGHT

1. All weights with the driver after qualifying and the race
2. All cars must maintain a minimum 45% left side weight at all times
3. All lead must be securely mounted outside the driver's compartment and be painted white with the car number on it
4. All added weight must be located between the centerline of the front spindles and the centerline of the rear end housing

### 6.3 - WHEELBASE

1. The wheelbase will be 105 inches with a ½ inch tolerance left and right
2. The wheelbase will be determined by stringing the left-hand side and taking a measurement, and then measuring the right-hand side

### 6.4 - TREAD WIDTH

1. Maximum allowable tread width is 65 inches
2. Spacers will be permitted to reach the maximum allowable tread width
3. Only one spacer per wheel
4. If spacers are used, must be the same thickness on the left and right hand side
5. Spacers do not have to be the same size front and rear
6. A ½ inch tolerance will be allowed on tread width from front to rear; however, neither may exceed the 65-inch maximum

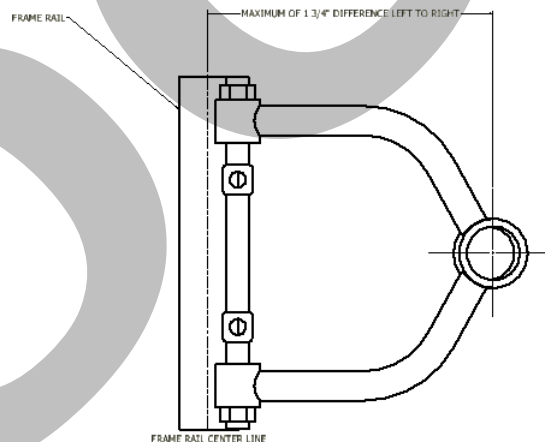
## 6.5 - GROUND CLEARANCE

1. Minimum ground clearance for the body, chassis, and any component mounted to the body or chassis is 4 inches
2. Minimum ground clearance for the exhaust pipes is 3 inches
3. The centerline of the crankshaft must be a minimum of 12 inches and a maximum of 13 inches
4. Minimum ground clearance for the fuel cell is 8 inches

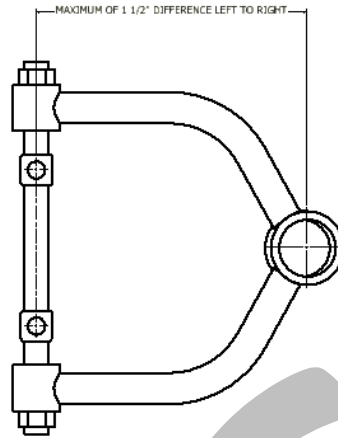
## 7.0 - SUSPENSION

### 7.1 - SPRINGS, SHOCKS AND A-FRAMES

1. Heavy duty springs optional as long as they fit in the original position
2. No coating of the springs allowed
3. Front shocks may be moved outboard for easy control and inspection
4. Only one shock per wheel
5. No external reservoirs
6. No coil binding or bump stops allowed
7. Oil or gas pressurized shocks allowed. No external adjusters permitted on shocks. If gas pressurized shocks are used, 50 lbs. of weight must be added to the right side
8. Shock claim rule will be \$600 for all 4 shocks. See "General Track Rules" for official claim procedure
9. Only rubber type spacers are permitted in the coil spring with a maximum of 1 full round allowed per coil spring
10. Tubular upper A-frames must measure within 1 ¾ inch of each other left to right. Measured from the center of the ball joint to the center of the frame rail. See diagram below:



11. The upper A-frames must be within 1 ½ inch of each other, when measured from the center of the bushing hole to the center of the ball joint. See diagram below:



12. The maximum shim stack on the upper A-frame is  $\frac{1}{2}$  inch, this will include solid bars and shims

## 8.0 - FUEL AND FUEL SYSTEM

### 8.1 - GENERAL

1. Fuel must test to OCS standard
2. No mixtures or additives of any kind
3. No nitrous oxide permitted
4. Cooling of the fuel not permitted
5. Fuel cells mandatory
6. The maximum allowed fuel capacity is 22 gallons
7. Fuel cells must have working check valves
8. Foam must be installed as manufactured
9. Fuel cell must be mounted equal distance between the frame rails and as far forward as possible
10. Fuel cells must have a minimum ground clearance of 8 inches
11. Fuel cell must be mounted in an approved steel can
12. Right side fuel fill not permitted
13. Electric fuel pump not permitted
14. A fuel cell protector bar must be installed at the rear of the frame
15. Fuel lines going through the driver's compartment must be mounted in a steel tube

## 9.0 – BRAKE SYSTEM

### 9.1 - GENERAL

1. Stock type OEM brake calipers allowed
2. Only one piston per caliper
3. No brake bias adjusters allowed within driver's reach inside car
4. All four brakes must work
5. All rotors must be magnetic steel
6. Slotted, drilled, or grooved rotors will not be permitted



## 10.0 - SAFETY

### 10.1 - SEAT BELTS

1. Seat belts must be a 5-point harness type
2. Seat belts must be in date in accordance with the manufacturer date on the label. The belts may be recertified
3. Seat belts must not be mounted to the floor pan
4. Seat belts must not cross areas that may cut the belts, i.e. not across sheet metal attached to a roll bar
5. Seat belts must be replaced if they are worn or the edges are frayed

### 10.2 - SEATS

1. Aluminum factory made racing seats required
2. Absolutely no homemade seats
3. Seats must be mounted in a manner acceptable to OCS Officials
4. Seats may not be mounted to the floor pan

### 10.3 - WINDOW NETS

1. An OCS approved window net must be installed on the driver's side window
2. Window net must release from the top and drop down
3. Window net bars must be substantial enough to contain the drivers arms in the event of a roll over

### 10.4 - FIRE EXTINGUISHER

1. All cars must have an onboard fire extinguisher
2. Extinguisher must be mounted so the charge gauge can be checked by OCS officials
3. Out of date fire extinguishers are not allowed

## 11.0 - ROLL CAGE

### 11.1 - GENERAL

1. A full roll cage is required
2. Roll bars must be welded and made of a minimum wall thickness of .090 seamless tubing
3. Roll bars must be at least 1 ½ inch OD
4. Roll bar may be extended through the firewall and loop around radiator
5. Roll bars may be extended to the rear deck also
6. Fuel cell protector must be installed behind fuel cell
7. Right side cage must have 4 bars in the door area
8. Driver's door roll bars should have intrusion plates welded to the outside a minimum of 1/8 inch plates

## APPENDIX A – CHASSIS/FRAME CONSTRUCTION

DIAGRAM 1 - TYPICAL LMSC FRAME (PLAN VIEW)

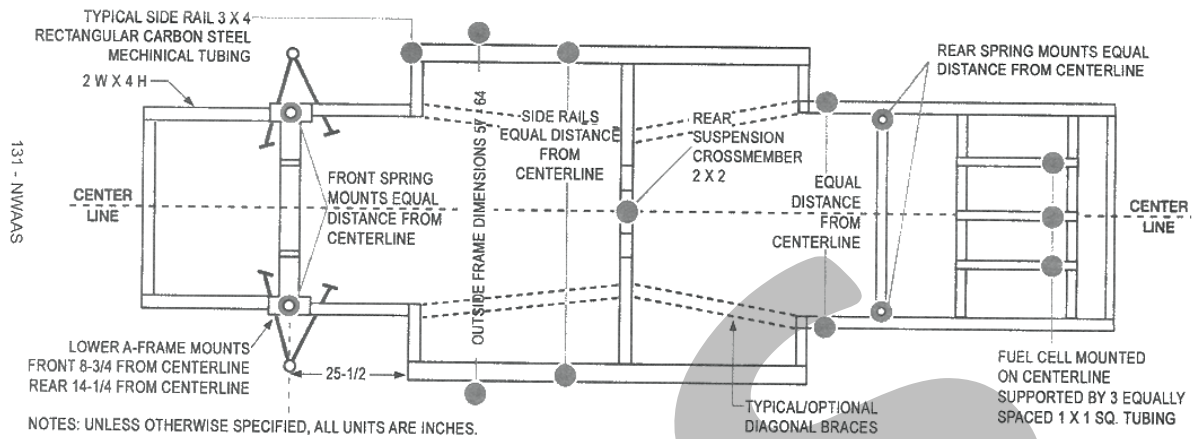


DIAGRAM 2 - TYPICAL ROLL CAGE AND FRAME CONSTRUCTION (PLAN VIEW)

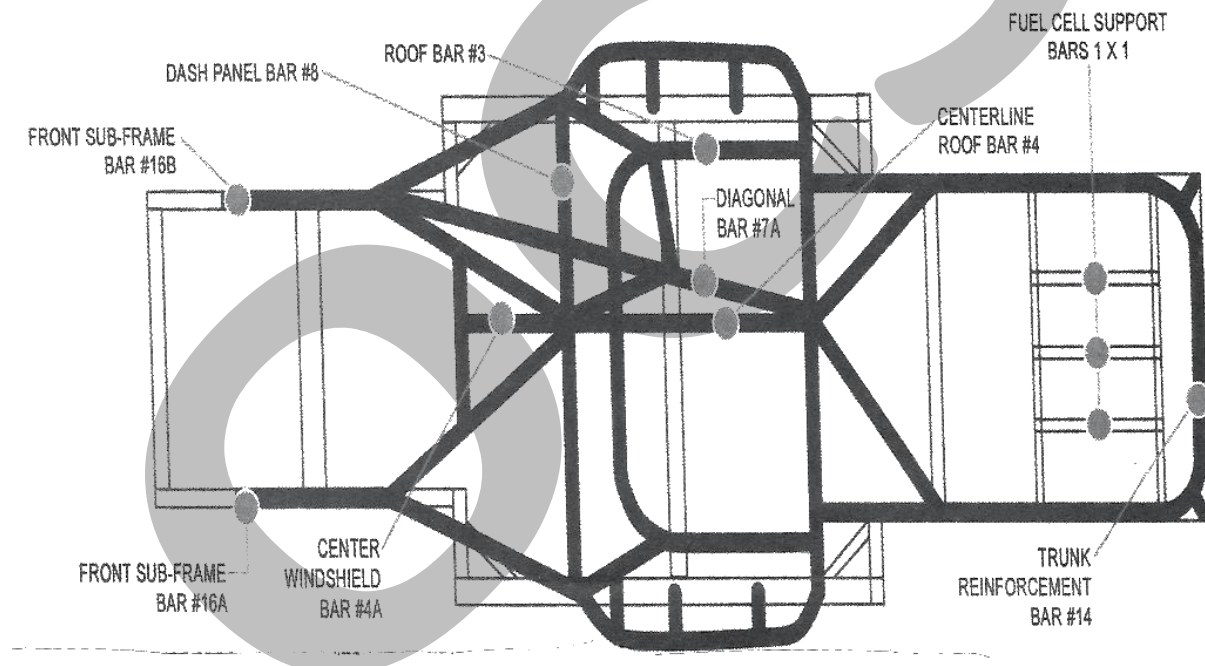


DIAGRAM 3 - TYPICAL ROLL CAGE AND FRAME CONSTRUCTION (SIDE VIEW)

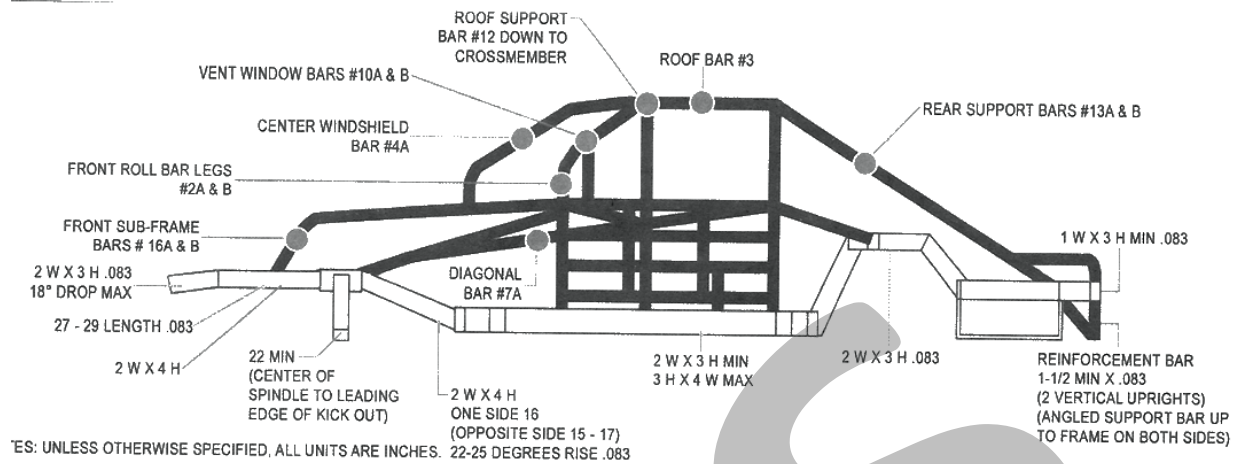


DIAGRAM 4 - EXPLODED VIEW OF BASIC ROLL CAGE

