

**Race Engine Challenge  
Classic Rivals Class  
Chevy vs Ford vs Mopar**

**2024 TECHNICAL RULES**

*(If you are not sure how to interpret any rule, call Greg Finnican 704-408-7356.)*

This contest WILL NOT use a cubic inch divider. Scored test RPM range is 3500-7000 RPM at 500 RPM's/second. Dyno correction factor will be SAE J607. Scores will be determined by averaging three of the best average HP dyno pulls out of up to the ten pulls permitted. The sum of the average corrected HP will determine the winner.

**100 – ENGINE**

Small block Chevy, Small Block Ford and small block Mopar. Power adders prohibited. Any method of artificially heating and/or cooling engine fluids, fuel, and/or air prohibited (not to include thermal or friction coatings). This includes, but is not limited to, heating and cooling by mechanical device such as an external cooler or radiator/heater exchanger, pre-heating or cooling of any fluids with an oil heater or fuel heater/cooler, or the addition of a temperature-altering device designed to cool or heat the incoming air charge by mechanical means such as an intercooler, chemical means such as a chemical to cool either the incoming air/fuel charge or intake manifold, or electrical means such as an electric oil heater inside or outside the engine. Aftermarket SFI spec 18.1 harmonic balancer is mandatory.

**101 – DISPLACEMENT**

410 cubic inch maximum, 400 cubic inch minimum. Cubic inch is calculated by bore x bore x stroke x 6.2832. Any part of a cubic inch is rounded up to the next highest inch, i.e. 408.3 = 409.

**102 – ENGINE BLOCK**

Any domestic OEM passenger car or commercially available aftermarket block.

**103 – CRANKSHAFT**

Any commercially available crankshaft permitted.

**104 – CYLINDER HEADS**

Commercially available 23° Chevy, 20° Ford, 18° Mopar with standard intake port height and location required. Porting or epoxy inside the original port casting permitted. Only modification to the exterior of the cylinder head is milling. Steel valves only. **HEADS TO BE USED MUST BE SUBMITTED FOR APPROVAL.**

**105 – IGNITION**

Distributor or coil on plug. No crank trigger. ECU and ignition components may be mounted either on the front or a plate attached to the flywheel side of the engine block and/or back of heads/intake manifold.

**106 – CARBURETION**

Single 4150 style four barrel style carb only. 1.780 inch maximum throttle bore diameter. Water or any other auxiliary fluid injection systems prohibited. Must be equipped with a single point rearward pull mechanical throttle linkage compatible with the dyno actuation linkage. **A bracket providing an anchor point for the dyno throttle cable and a compatible linkage ball is required at the pull point.**

All engines will utilize an electric fuel pump with regulator and supply line filter supplied by the dyno facility. Each engine builder utilizing a carburetor will determine the fuel pressure. Both single and dual feed applications will be given one (1) type 8 AN connection fuel line.

### **107 – FUEL INJECTION**

Any style throttle body. 65 psi maximum supplied fuel pressure at dyno gauge. Water or any other auxiliary fluid injection systems prohibited. Must be equipped with a single point rearward-pull mechanical throttle linkage compatible with the dyno actuation linkage. **A bracket providing an anchor point for the dyno throttle cable and a compatible linkage ball is required at the pull point.**

Fuel pressure regulation will be provided by a system consisting of an electric fuel pump, regulator and supply line filter as part of the dyno fuel system. Fuel pressure will be set at 65 PSI maximum on the dyno fuel pressure gauge. Fuel pressure will be set prior to engine start up (engine off). This is a supply and return system. A single -10 AN fitting will be required for fuel hook-up to the fuel rails and a single -8 AN fitting will be required for the return fuel line. The use of a commercially available bolt on stand alone 4150 EFI throttle body unit is permitted.

### **108 – AIR SUPPLY**

Provided by a plenum in the ceiling with air coming in at a 45 degree angle. No structure, deemed by the event management as designed to take advantage of air flow in the dyno room installation, is permitted.

### **109 – AIR FILTER**

Not permitted. Structures such as ram tubes, velocity stacks, etc. attached to the inlet portion of the carburetor/fuel injection are permitted. Velocity stacks, ram tubes or other devices attached to the throttle body/carburetor limited to six (6) inches maximum.

### **110 – CAMSHAFT**

Unlimited.

### **111 – CAMSHAFT DRIVE**

Three piece chain drive must be under the timing chain cover.

### **112 – LIFTERS**

Any lifter type permitted. .903 diameter limit. Lift bushing permitted.

### **113 – VALVE LIFT LIMIT**

.710

### **114 – IDLE**

Engine must be able to idle under 1,000 RPM's.

### **115 – INTAKE MANIFOLD**

Engine must use a mass produced commercially available cast aluminum or composite manifold that is a direct bolt on. Internal porting of the manifold permitted. The only welding/epoxy permitted on the exterior is for installing injector bungs. Carb/TB spacer is limited to 1 inch (plus two gaskets). Water lines from the back of the manifold to the front permitted. Maximum thickness between intake manifold and cylinder heads of .125 inches. Intake manifold from another family of engine not permitted.

### **116– CONNECTING RODS**

Steel.

### **117 – PISTONS AND RINGS**

No smaller than mm, .9 mm, .9 mm with **lateral gas ports or gas ported rings.**

## **118 – COMPRESSION RATIO LIMIT**

11:1

## **119 – FUEL**

VP MS 109 Reg

## **120 – ROCKER ARMS**

Unlimited.

## **121 – HEADERS**

Chassis-style exhaust headers that run down and back from the front of the engine required. Port matching of the header flange permitted. Headers and slip-on style collectors are acceptable. Maximum collector diameter 3.5 inches. Minimum collector diameter 3 inches. No crankcase exhaust ventilation permitted. Bungs for Lambda O2 sensors are permitted. Thermal header wraps (such as Kevlar fabric) not permitted. Adapter plates between cylinder head and header permitted. Exhaust “port plates” permitted. **A minimum of 22 inches between collectors.**

## **122 – OIL PAN/SCRAPER**

Oil pan must be commercially available and be of a stepped sump design without alteration to the external dimension of the pan. **Applicant will submit the pan to be used which will have to be found in a Competition Products, Jegs or Summit catalog.** Dry sump systems and vacuum pumps prohibited. Oil pumps with scavenging stages or used in conjunction with external tanks is prohibited. Oil system accumulators prohibited. Electrically powered oil pumps prohibited. No external vacuum pump. Oil pump must mount to OEM location. Internal custom scraper and baffle permitted. Temp sensor will be attached to the surface of the oil filter.

## **123 – OIL**

All engines must be shipped “dry”. Engine will be required to use at least 5 quarts of oil. Participants will use only the oil supplied for the competition. Competitors will have their choice of viscosity.

## **124 – OIL ADDITIVES**

No oil additives permitted.

## **125 – WATER PUMP**

Belt driven mechanical water pump or electric. Use of cooling system thermostat prohibited. Water pump must be mounted in the OEM location. External water lines permitted.

**Water in and out for dyno hook-up requires your engine to take a 20 AN female or have a 1.25” barb or pipe on your engine.**

## **126 – ELECTRICAL CONNECTIONS**

Contestants will be supplied three (3) 12 Volt 20 AMP, one (1) switch 12V and four (4) negative connections.

## **127 – STARTER**

Dyno will provide the starter.

## **128 – FLYWHEEL/FLEXPLATE**

Any commercially available, SFI-certified domestic manual STEEL transmission flywheel is mandatory. Flex plates are prohibited.

## **129 – COATINGS**

Any commercially available performance coating permitted.