Race Engine Challenge

Max Street or Hot Street Class

Participants must choose one Class

2024 TECHNICAL RULES

If you are not sure how to interpret any rule, contact Greg Finnican

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MAX STREET CLASS will not use a cubic inch divider. Any size engine up to 442 cubic inches. Best score wins. Scored test RPM range is 5000-7500 at 500 RPM's/second. Dyno correction factor will be SAE J607. Score will be determined by averaging three of the bet average HP dyno pulls out of up to the ten pulls permitted.

HOT STREET CLASS will use a cubic inch divider in scoring to compensate for varied engine displacement. Scored test RPM range is 5000-7500 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 is divided by the claimed cubic inches and then multiplied by 1,000.

100 – ENGINE

Normal aspirated OEM domestic architecture cam in block passenger car V8 engine. 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 – MAX STREET DISPLACEMENT

Any engine size up to 442 cubic inches.

102 – HOT STREET DISPLACEMENT

375 cubic inch minimum displacement. Engines with less than 400 cubic inches will still be scored as 400 cubic inches. Cubic inch is calculated by bore x bore x stroke x 6.2832. Cubic inches are calculated to one (1) decimal place, i.e., 450.0. Any part of a cubic inch is rounded up to the next highest inch, i.e., 401.2 = 402, for the purpose of claimed cubic inch of engine as used in scoring. The cubic inch used in scoring will be a whole number; no decimal part will be used.

103 – ENGINE BLOCK

Any domestic OEM passenger car or commercially available aftermarket OEM replacement, cast iron or aluminum block permitted. Engine block must retain OEM cylinder bore spacing, block angle and stock lifter bores spacing. Raised deck and raised cam blocks permitted. LS/SBC hybrid blocks permitted.

104 – CRANKSHAFT

Any commercially available crankshaft permitted.

105 – CYLINDER HEADS

Any cast two valve aftermarket or OEM head permitted. No billet heads permitted. Any valves permitted. No welding/epoxy on the exterior of the heads except welding/epoxy repairing for PUSHROD CLEARANCE and welding on the heads to be able to tap threads to secure an intake manifold. Spark plug and valve guides must remain in their original

as cast location. Valve angles do not have to match original OEM angle for its family of engine. Welding/epoxy/porting within ports permitted. Ports must remain in their original as cast and manufactured location. Push rod tubes permitted. From the bottom/deck of the head to the bottom of the port is limited to 2". Because of its different architecture, the GEN III Hemi is limited to 2.300". Up to one hundred thousandths (.100) offset dowel pins permitted. No cylinder head deck plates permitted.

106 – IGNITION
Unlimited. 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.

107 – CARBURETION
Unlimited. 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 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 -8 AN connection fuel line.

108 – FUEL INJECTION
Unlimited. 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.
A fuel pressure regulator 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.

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

110 – 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.

111 – CAMSHAFT DRIVE
Max Street can have external cam dive. Hot Street enclosed.

112 – LIFTERS
Any lifter type/diameter permitted. Lifter bushings permitted.

113 – MAX STREET VALVE LIFT
Unlimited.

114 – HOT STREET - ZERO LASH VALVE LIFT LIMIT
.775. For engines over 400 cubic inches the lift can be increased .002 for every cubic inch over 400 (for example, a 427 cubic inch engine could have a zero-lash lift limit of .829). Any engine with less than 400 cubic inches the lift limit is reduced .002 for every cubic inch below 400 cubic inch (for example a 375 cubic inch engine would have a zero lash limit of .745).

115 – CAMSHAFT JOURNAL DIAMETER
Maximum of 55 mm. Gen III Hemi can run their original journal size.

116 – IDLE
Engine must be able to idle under 1100 RPM's for a minute.

117 – MAX STREET INTAKE MANIFOLD
The use of spacer/adapter plates for intake to head attachment is permitted. Welding or epoxy on interior/exterior permitted. An intake from another family of engines can be used. Sheet metal is permitted. From the top of the china wall to the top of the intake manifold including carb or throttle body spacer is limited to 12.5 inches. The 12.5 inches does not include the carb/TB. Tunnel ram/cross ram and eight stack manifolds permitted. On the eight stack the 12.5 inches is measured from the china wall to the top of the bell-shaped stack. With GEN III Hemi a line will be drawn between cylinder heads to represent a china wall. The width of the manifold is limited to a horizontal line drawn between a vertical line drawn from the two outer edges of the cylinder head's outer edges of the valve cover surface. Carb fuel injection combination permitted. No variable runner length mechanism permitted. Water lines from the back of the manifold to the front permitted.

118 – HOT STREET INTAKE MANIFOLD
Engine must use a mass produced commercially available cast aluminum or composite single plane manifold with a 4150 or 4500 bolt pattern or a commercially available forward facing/side facing cast aluminum fuel injection manifold. From the top of the china wall to the top of the intake manifold including carb/TB spacer is limited to 12.5 inches. Forward facing throttle bodies on fuel injected engines the limit to the top of the plenum is also limited to 12.5 inches. The only welding/epoxy permitted on the exterior is for installing injector bungs. Unlimited carb/TB spacer as long as the total height when using a carb/TB spacer is no more than the said 12.5 inches. Water lines from the back of the manifold to the front permitted.

119– CONNECTING RODS
Any connecting rod permitted.

120 – PISTONS AND RINGS
Any three-ring combination. **Vertical or lateral gas ports in Max Street. Lateral gas ports only in Hot Street.**

121 – COMPRESSION RATIO LIMIT
12.0:1 Hot Street
Unlimited Max Street

122 – FUEL
TBD

123 – ROCKER ARMS
Unlimited.

124 – 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.
Crankcase ventilation systems that vent to any component of the exhaust system permitted ONLY in Max Street. Bungs for Lambda 02 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.

125 – OIL PAN/SCRAPER
Oil pan does not need to be commercially available. Pan must measure no deeper than twelve (12) inches from the crank centerline. Pan restricted to maximum of two (2) inches wider on one side than widest portion of pan rail. Sump configuration may be front, center, or rear. Sump must be maximum of ten (10) inches long and six (6) inch minimum front to back and have at least a three-inch (3.00") differential from the lowest section of the pan to the balance of the pan. Dual sump pans that have a sump in the front and rear (e.g. 79-93 Mustang pans) must also have a 3" differential between the two sumps and the center section. 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. External belt driven single stage oil pumps permitted. Electrically powered oil pumps prohibited. External oil drain back from the valve cover/rocker area to the oil pan permitted. Internal custom scraper permitted. Temp sensor will be attached to the surface of the oil filter.

126 – 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.

127 – OIL ADDITIVES
No oil additives permitted.

128 – WATER PUMP
Belt driven mechanical water pumps or electrical water pumps permitted. Use of cooling system thermostat prohibited. Water pump must be mounted in the OEM location.
Water out of the block in the front of the engine can be modified as long as it is to a single point that can be attached to the dyno cooling system. External water lines permitted. Water in and out requires your engine to take a 20 AN female or have a 1.25" barb or pipe on your engine.

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

130 – STARTER
Dyno will provide the starter.

131 – FLYWHEEL/FLEXPLATE
Any commercially available, SFI-certified domestic manual STEEL transmission flywheel is mandatory. Flex plates are prohibited. Starter ring gear not required.

132 – COATINGS
Any commercially available performance coating permitted.

REMINDERS

- Max Street can have vertical or lateral gas ports. Hot Street lateral ONLY.
- Max Street can have crankcase ventilation to the exhaust. Hot Street CANNOT.
- Max Street can have external cam drive. Hot Street enclosed.
- Max Street has no compression limit.
- Max Street has no lift limit.
- Cubic limit on Max Street
- Heads up scoring on Max Street
- Cubic inch divider on Hot Street
- Different intake manifolds for the two classes