



NHRA Pro-Stock Motorcycle Engine Specifications

Initial Re-release: 11/14/2012

2nd Release: 03/09/2020

3rd Release: 07/06/2023: Cylinder Head acceptance process. Cylinder Head valvetrain.

NHRA Engine Specifications

ENGINE:

MAXIMUM DISPLACEMENT:

- ~~Harley-Davidson/Victory~~/V-twin design - up to 160 cid / 2 - valve
- In-Line 4-cylinder type – up to 107 cid / 2 - valve
- In-Line 4-cylinder type – up to ~~113~~ 107 cid / 4 - valve
- In-Line 4-cylinder type – up to ~~107~~ 113 cid / 2 - valve
- In-Line 4-cylinder type – up to 113 cid / 4 - valve

MATERIALS:

- All moving engine components are restricted to aluminum, steel, iron, titanium or other conventional alloys.
 - Carbon fiber, Kevlar, ceramics, beryllium or any other exotic material prohibited.
- Case, block and heads are restricted to billet or cast aluminum.
- Crankshafts, camshafts, pushrods (if used) and valve springs must be steel.
- Connecting rods must be steel or aluminum.

IDENTIFICATION:

- Case, block and head must each be identified with motorcycle manufacturer's part number.
~~including indication of date manufactured.~~

ENGINE CASE:

- All cases must be NHRA approved. Case must be either an OEM production casting or a casting or machined billet part based on the production design or NHRA Accepted design. Only those cases submitted by the OEM manufacturer will be considered for acceptance. Modifications to any accepted case is prohibited except for repair purposes.
- V-twin engine cylinder angle is 60 degrees. Maximum allowable cylinder angle from vertical is 45°. ~~Maximum cylinder offset on V-twin is 1".~~

ENGINE BLOCK:

- ~~If the cylinder block is separate from the case area, then either the OEM production block or NHRA accepted cylinder block is permitted. Only those cylinder blocks submitted by the OEM manufacturer will be considered for acceptance.~~ If the cylinder block is integral to the engine case, modifications are only permitted in the bore area; i.e. to enlarge bore(s) or move bore spacing. Maximum bore spacing is 98mm for In-Line. ~~Maximum cylinder offset on V-twin is 1".~~

CYLINDER HEAD:

- All cylinder heads must be NHRA accepted. Head may be an OEM production casting or a casting or machined billet part based on the production design or NHRA accepted design. Only those heads submitted by the OEM manufacturer will be considered for acceptance. Chambers may be modified to accommodate bore spacing of the block. Intake and exhaust runners (spigots) will not be included in the head acceptance process (including when runners (spigots) are included as one (1) piece with the cylinder head). ~~All aftermarket heads that were accepted prior to November 14, 2012 will be allowed to continue to run in competition.~~
- All V-twin engines must use a push-rod, rocker arm design for the valve activation. Minimum push-rod length is 8.0”.
- All in-line 4 cylinder engines must use the overhead camshaft design.
- VALVETRAIN:
 - Maximum 2 valves per cylinder for all engines.
 - With the following exceptions:
 - Kawasaki engine which is allowed a maximum of 4 valves per cylinder.
 - Suzuki Monster and Vance & Hines cylinder head is allowed a maximum of 4 valves per cylinder.
- Variable cam timing devices and pneumatic actuation and finger followers are not permitted.

FUEL SYSTEM:

- Fuel Injection permitted. Only one (1) injector permitted per cylinder.
- Direct injection (into the combustion chamber) not permitted.
- All ECU Systems must be NHRA accepted.
- Maximum one injector per cylinder.

IGNITION SYSTEM:

- All ignition systems must be NHRA Accepted.
- Aftermarket crank triggered, capacitive discharge (cd) ignition systems permitted.
- Magnetos are not permitted.

Refer to the NHRA Rulebook for additional rules and regulations.