

# BIG DIAMOND RACEWAY

## 2010 SPORTSMAN ENGINE RULES

1/29/09

### **PREFACE:**

In an effort to both control costs, and keep competition fair BD Raceway, LLC has adapted the sportman rules to accommodate combinations as the engines from other tracks at Big Diamond Raceway. In 2009, these engines may go thru a vigorous inspection during the season. An outside tech group may be brought into randomly check engines and may require the heads to be pulled to check for engine spec. infractions.

### **GENERAL ENGINE RULES**

1. All engines must maintain stock bore and stroke combinations  
Engine Maximum Overbore C.I. Engines may not pump over specified cubic inch.

Chev 350 C.I. 4.00" bore x 3.480" stroke + .070 = 363 C.I.  
Chry. 360 C.I. 4.00" bore x 3.578" stroke + .020 = 364 C.I.  
Chry. 340 C.I. 4.04" bore x 3.313" stroke + .060 = 350 C.I.  
Ford 351 C.I. 4.00" bore x 3.500" stroke + .060 = 363 C.I.

2. Normally aspirated engines only are permitted. NO reverse rotation engines.

3. **BLOCKS** – This class is reserved for North American passenger car V-8 engines with iron blocks. OEM production engine blocks under 360 cubic inches but no less than 340 cubic inches. Aftermarket iron blocks, such as; Dart Iron Eagle or 'Little M', Merlin, Bow-Tie etc., copies are permitted but must be equivalent to its stock counterpart. OEM deck height and cam location are required on all blocks. **No aluminum blocks!**

#### **4. HEADS -**

- Chevrolet, Ford, or Chrysler cast iron factory production heads only. Chevy Bow-Tie, Chevy Vortec; 180 cc / 200 cc Dart Iron Eagle Heads (180c.c. recommended); Ford Performance cylinder head N352, N351; Chrysler W-2 performance head are all permitted.
- All heads must maintain the stock valve guide angle. Valve head sizes are optional provided they maintain stock OEM positioning in valve guides. Valve guides liners are allowed. Any angle valve job will be permitted as long as it is done on a machine that cuts concentric to the valve center.
- All heads must remain UNPORTED. All cylinder heads shall be required to pass a ball test and meet stock port size requirements. A go/no-go gauge will be used to determine the height of the intake port. A go/no-go gauge will be used to determine the height and width of the exhaust port. A go/no-go intake runner ball will be used to determine the dimension of the intake runner. An exhaust valve seat ball consisting of a .531" diameter ball bearing welded to a ¼" flexible shaft will be used with the valve fully opened, the ball will be placed against the valve stem and moved in a full circle (360 degrees) around the valve stem. If the ball drops down through the valve seat in any position around the full circle of the valve stem, it will be deemed illegal. An intake valve seat ball using the same procedure as described for the exhaust side will be used, except the ball size will be .787.
- All cylinder heads must remain in factory condition with no modifications. No modifications means no sand blasting, bead blasting, acid dipping, porting, port matching, gasket matching, polishing, welding, or epoxy. No relieving or unshrouding of the valves in the combustion chamber. No hand grinding, sanding, blending, or de-burring. Inspection will be conducted with the head on the engine, but the method of checking may require the removal of the intake and exhaust manifolds. Heads will be removed only to surrender to BD Raceway officials for appeal or protest and to visually inspect for any modifications.
- The modification of the valve spring pockets to accept larger valve springs for higher RPM operation is permitted.
- Screw in rocker studs and guide plates are permitted.

- Angle milling or straight milling of the cylinder heads to increase compression ratio is permitted. The angle milling procedure may include re-machining intake surfaces, opening pushrod holes and straightening and chamfering head bolt holes.
- No titanium engine parts of any kind except for valve keepers/retainers and locks.
- Any Carbon Fiber parts are illegal.

The method of teching heads will hold true for a hot or cold engine.

5. **CRANKSHAFT** – Any stock appearing cast iron or forged steel crankshaft is permitted. Lightening or balancing holes through rod journals are permitted. No knife edging, narrowing or cutting down the diameter of the crank counterweights. No machine work to be done to crank counterweights or journals with the exception of normal balancing and resurfacing procedures. Only stock type engine bearings allowed.

6. **RODS** – Any factory production or aftermarket cast iron or forged solid steel connecting rod. No aluminum, titanium, polished or billet. 6" maximum rod length except for Chrysler which may be 6.125". No machine work may be done to connecting rods except for shot peening, and normal balancing and resizing procedures. **NO titanium or aluminum!**

7. **PISTONS** – Any brand, three ring flat top aluminum pistons only. No coating of any kind are allowed. 0 deck height. No part of piston can extend above the block.

8. **CAMSHAFT** – No roller cams, roller gear driven cams, roller, mushroom lifters or lash caps are allowed. Camshaft may be of any brand. Only hydraulic or mechanical/solid flat tappet type camshafts permitted. Camshaft and lifters must be solid steel or cast iron construction only. Camshaft must be located in factory position in block. Stock type and size cam bearings only. Lifters and lifter bores are to remain stock in diameter and are to remain in stock location within block. Sleeving of the lifter bores to compensate for wear is permitted. Stock type timing chain and gears only. No gear drives, belt drives or devices with external camshaft timing provisions are allowed. Roller rocker arms of any ration are permitted.

9. **INTAKE MANIFOLD** – 1. Must be a stock passenger car, cast iron 2 barrel intake manifold only. No porting, polishing, welding, gasket matching or acid dipping is allowed.  
 2. **Any Edelbrock aluminum four barrel as cast box stock, spec manifold may be used.** No work of any kind may be done on these manifolds.  
 3. The manufacturer is Brodix part #HV1011 for Chevy, Edelbrock part number 2915 for Chrysler 340 heads, Edelbrock part number 2920 for the Chrysler W-2 head, and Edelbrock part number 2981 for the Ford 351 Windsor.

Any make carb spacer – adapter will be allowed providing it does not measure more than a maximum of 1" thick with gasket.

10. **CARBURETOR** – Any American stock OEM 2 barrel carburetor up to 1 11/16" throttle bore with no adapter plate is legal on cast iron manifolds. The Holley carburetor, part #4412 is the only acceptable carburetor and must run a maximum spacer adapter of 11/16" including gaskets. No modifications of any kind will be allowed to these carburetors except removal of choke plate and shaft. Do not remove choke horn! Box Stock ONLY! The jets may be changed as needed. Mechanical throttle linkage only. Double return springs required. Conventional round type air cleaners only. Air cleaners that provide ventilation through the top cover are permitted. No air induction plastic carburetor inserts or other devices to direct air into intake. No air diffusers are allowed. - Holes drilled in the throttle plates for proper idling.

11. **FUEL PUMP:** Only 1 stock type mechanical fuel pump located in stock location on engine is permitted. No electric or cam driven fuel pumps allowed.

12. **OIL SYSTEM** - No dry sump system is allowed. Oil must be in steel pan only. Oil pan must have 3/4" inspection hole for connecting rod verification on left side of pan. No external oil pumps or Accu-sumps allowed. Oil coolers will be permitted providing they are mounted under the left wing or under the hood only.

13. **WATER PUMPS** - May be cast iron or aluminum only. Radiator fan must be steel only. No electric cooling fans or pumps.

14. **FUEL** - GASOLINE ONLY. No nitrous or any other additives are permitted. The base fuel used for testing will be track fuel.

15. **Ignition** – Only stock type battery ignition systems permitted. Use of aftermarket stock type distributor is permitted. No external or internal ignition boxes or ignition amplifier permitted. On H.E.I ignition, coils must remain in distributor in stock OEM. No crank trigger ignition systems No traction control devices of any kind. The use of aftermarket Add-on rev-limiter to protect engine from over-revving is permitted

16. **VIBRATION DAMPENERS** - May use any SFI approved harmonic balancer.

17. **Weight** – Chevy/Ford/Chrysler Stock = 2450 lbs.  
180cc/200cc Dart Heads = 2450 lbs  
Vortec Heads = 2450 lbs  
Any other combination may have substantial weight added per tech and mgmt.

#### **PENALTIES from DISQUALIFICATION:**

Big Diamond Raceway is a fair racing facility. We will have minor and major infractions, decided at the discrepancy of head tech official and approved by track management.

#### **MINOR INFRACTIONS:**

An infraction not intentionally intended to cheat the track or other competitors. Examples are weight infractions, carburetor gauge infractions, etc...

- Will lose all money won for the evening.
- Will lose all points for the evening, but will receive average money won handicap points (therefore you will not benefit from disqualification).

#### **MAJOR INFRACTIONS:**

An infraction intentionally intended to cheat the track or other competitors, knowingly giving yourself an unfair advantage. Examples are traction control, tire softeners or hardners, illegal engine modifications (driver/owner are responsible for engine, know what you are getting from your builder), etc...

- Will lose all money won for the evening.
- Will lose all award points for the year.
- Will lose all average money handicap points, and will be given feature win handicap money for the night. The following week you will begin as a newcomer with handicapping money from the disqualification.
- Fine may be imposed.
- Part may be confiscated (if you do not give up part suspension may occur).

**Please do not put us in a position to make a major infraction decision, it is an embarrassment to you and the track.**