



# OFFICIAL CASTING I.D. GUIDE

**TO:** All Track Operators / Tech Officials  
**FROM:** World Products Technical Support Department  
**SUBJECT:** Casting I.D. for Tech Purposes

Dear Operator / Official,

The following pictures will be useful in identifying World Products cylinder head castings. World Products has earned a reputation for unquestionable integrity in the form of consistent and standardized casting specs. This eliminates the possibility of "special" castings for "special" racers or multiple variations of the same head. If you have any difficulty identifying an aftermarket cast iron cylinder head--do not hesitate to call our Technical Support Department at 1-810-939-9628.

## **SPORTSMAN II.** Also Known as the "Dart II®"



A "W" is cast between the left two pairs of rocker stud bosses--just below the valve cover bolt hole. Valve cover rails are raised for valvetrain clearance and machined to resist leaks. Dual bolt patterns accept early or late valve covers.



Between the center two pushrod holes is a date code. Note also that on Sportsman II's the pushrod holes are drilled not broached. These drilled holes necessitate the use of pushrod guideplates.

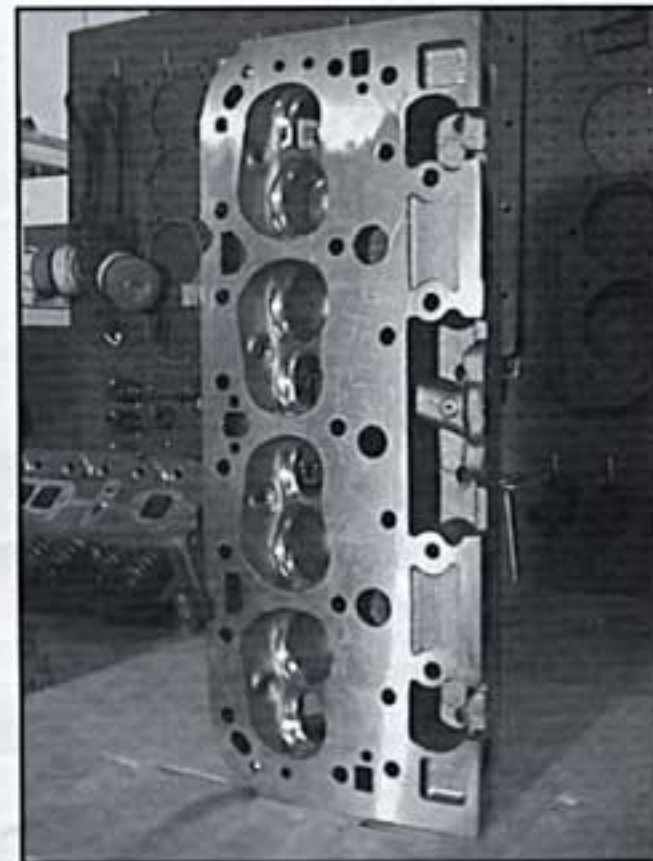
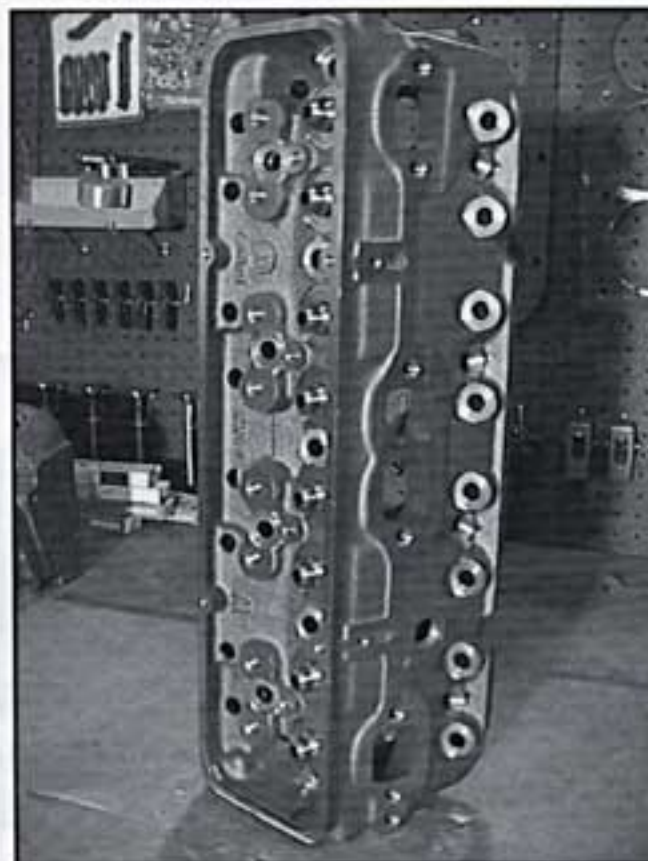


Between the right two pairs of rocker studs, the letters "I-037" indicate a Sportsman II casting. On a Sportsman II, the foundry mark is below the model number. Different foundries have been used through the years.

The Sportsman II was introduced by World Products in 1987. In fact, World has been the sole producer of aftermarket cast iron up to 1998. Originally, the head was called Dart II™ because of the affiliation with then sister company Dart Machinery. Your track rules may incorrectly refer to the World Products Sportsman II head as "Dart" heads. World is no longer affiliated with Dart Machinery in any way. To establish a level playing field, it is important to clarify the rules.

### **World Products Sportsman II**

Intake Runner Volume .....	200cc
Combustion Chambers .....	64cc or 72cc
Spark Plug Location .....	angled or straight
Valve Spring Pockets .....	1.250"/1.550"
Rocker Stud Bosses .....	Screw-In Style
Intake Port .....	Fel-Pro 1205
Valve Guides .....	Integral Steel



DART II® AND MERLIN® ARE REGISTERED TRADEMARKS OF WORLD PRODUCTS, INC.



## S/R and S/R Torquer: 1.940"x1.500" and 2.020"x1.600" Stock Replacement Cylinder Heads



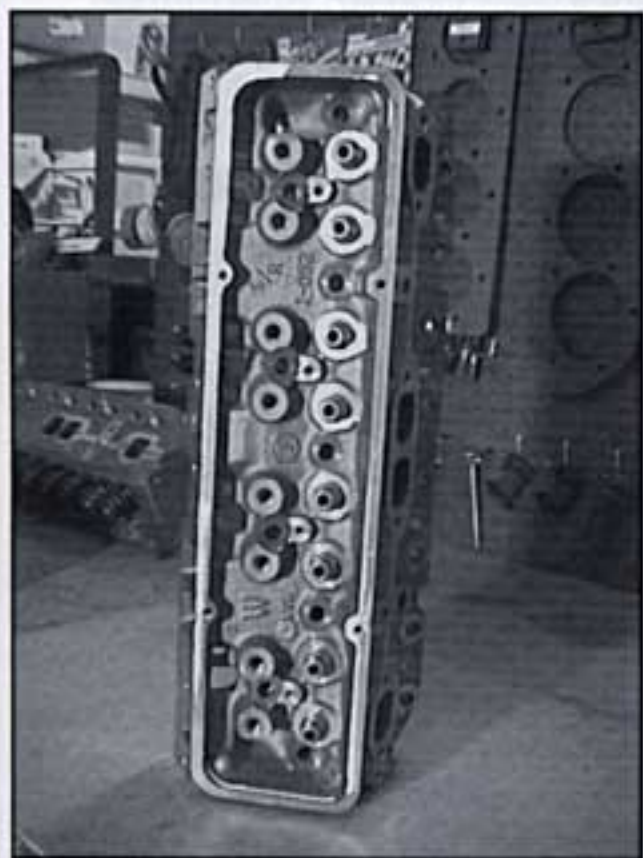
On the left side of the valve train area, between the rocker stud bosses, a "W" of course stands for World. This particular casting has a date stamp of "AVE" which means that it made on 01/22/98. S/R's were cast as early as 1990.



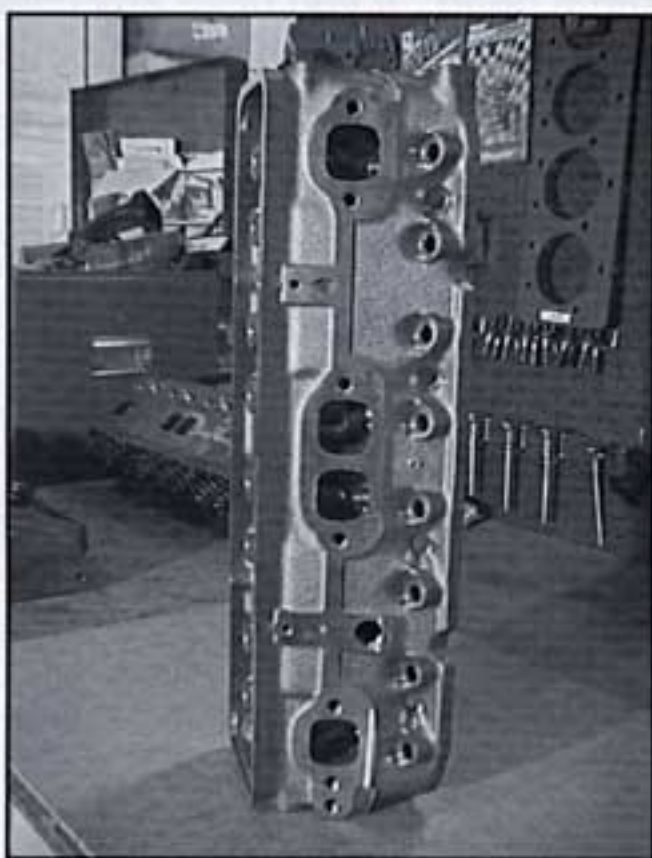
In the center of the valvetrain area, between the middle rocker stud bosses you'll find the foundry mark. Different foundries have been used through the years. Rocker stud bosses are machined, drilled and tapped for screw-in studs.



Between the right two pairs of rocker stud bosses, the letters "I-052" indicate that this casting is an S/R. The letters "S/R" are cast above. On S/R Torquer 305's, the numbers "305" are cast instead of the letters "S/R".



The S/R Torquer has raised and fully machined valve cover rails that accept both perimeter (early style) and centerbolt (late model) covers. The machined rails are less prone to gasket leaks. Unlike the Sportsman II, S/R spring pads are only machined for 1.250" valve springs. Broached pushrod holes allow use without guideplates. Hardened pushrods are not necessary. Like an OE cylinder head, it may be necessary to elongate the pushrod holes.



S/R and S/R Torquers have a seven bolt exhaust flange. Exhaust ports are smaller than on the Sportsman II cylinder head (previous page). Look how much the valve cover rails have been raised. Others have copied this valve cover rail feature, so don't rely on it alone. S/R and S/R Torquer castings are only available with straight spark plug bosses. There are no angle plug versions.



For budget classes, S/R cylinder heads offer reliable power at a low price. Here you can see many features. Dual valve cover bolt patterns, broached pushrod holes, screw-in rocker stud bosses. Like all World Products cast iron heads, S/R castings feature integral hardened guides. Other brands use bronze guides which are weaker and can offer an unfair airflow advantage. For maximum reliability and a level playing field be sure to specify World Products heads.

### COMBUSTION CHAMBERS

The casting below shows OE style S/R Torquer combustion chambers. The inset shows the more rounded chamber of the S/R Torquer 305. This 58cc chamber is shaped differently to fit small bore (under 4.000") engines such as 283, 305 and 307. Compare these two shapes to the fast burn design of the Sportsman II on the previous page.



S/R TORQUER 305  
58cc

# WORLD

PRODUCTS



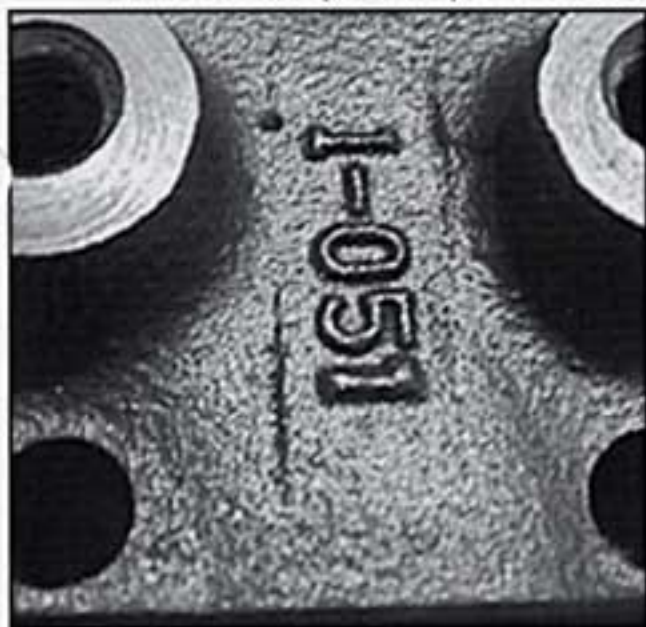
S/R &  
S/R TORQUER  
67cc or 76cc

### World Products S/R and S/R Torquer

Material .....	Cast Iron
Intake Runner Volume .....	170cc
Combustion Chambers .....	67cc or 76cc
Chambers (S/R Torquer 305) .....	58cc
Spark Plug Location .....	straight
Valve Guides .....	Integral Steel
Valve Spring Pads .....	1.250"
Valve Sizes (S/R) .....	1.940"x1.500"
Valve Sizes (S/R Torquer) .....	2.020"x1.600"
Rocker Stud Bosses .....	Screw-In Style
Intake Port Size .....	Fel-Pro 1204

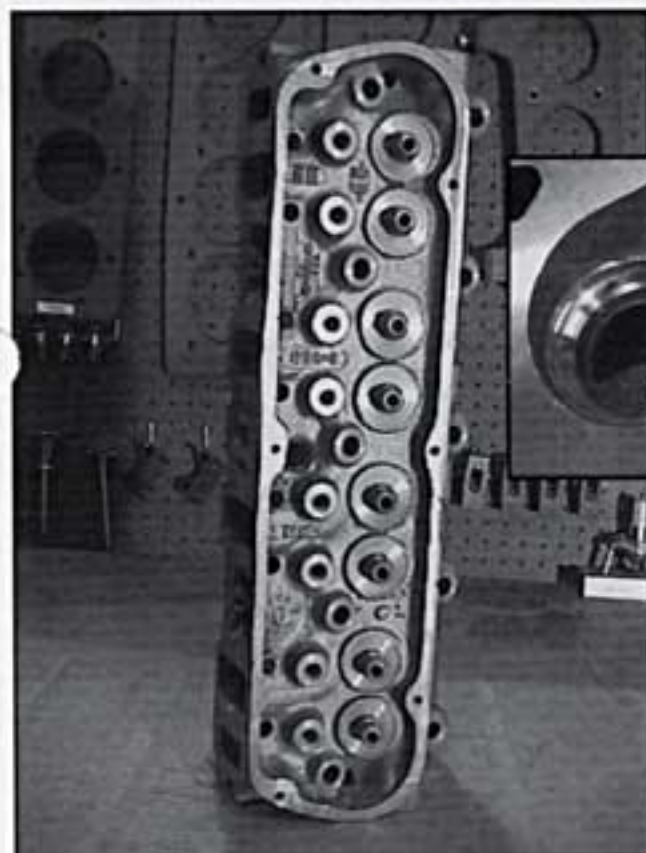


## Windsor (200cc) and Windsor Jr. (170cc) Cylinder Heads for 289, 302, 351W SB Ford



World produces two cylinder heads for SB Fords. The two heads are very similar. They differ only by intake runner volume, chamber volume and standard valve size. The casting number is located between the second pair of rocker studs from the right. The Windsor's casting number is "1-051" while the Windsor Jr. is "1-056". The two heads look similar because they are both true high performance designs with high flow runners, fast burn chambers and adjustable valvetrain. Learning the codes is the easiest way to tell them apart. Both heads are also available in aluminum. The aluminum Windsor is coded "1-034". The aluminum Windsor Jr. coded "1-057".

To simplify identification, we cast the name "Windsor" into the larger 200cc head and "J/R" into the smaller 170 cc head. The J/R features stock valve centerlines and 1.940"x1.600" valve arrangement. Choose the Windsor Jr. in mild applications seeking a bolt on installation. The 58cc chambers match OE 5.0 castings.



Both the Windsor and the Windsor Jr. feature the same high efficiency chambers. Only the volume differs (64cc for the Windsor and 58cc for the Windsor Jr). Valve centerline is wider than stock for the Windsor. This allows machining for valves as big as 2.080"x1.600". The spark plug location has been moved towards the center of the chamber, then angled towards the exhaust valve.



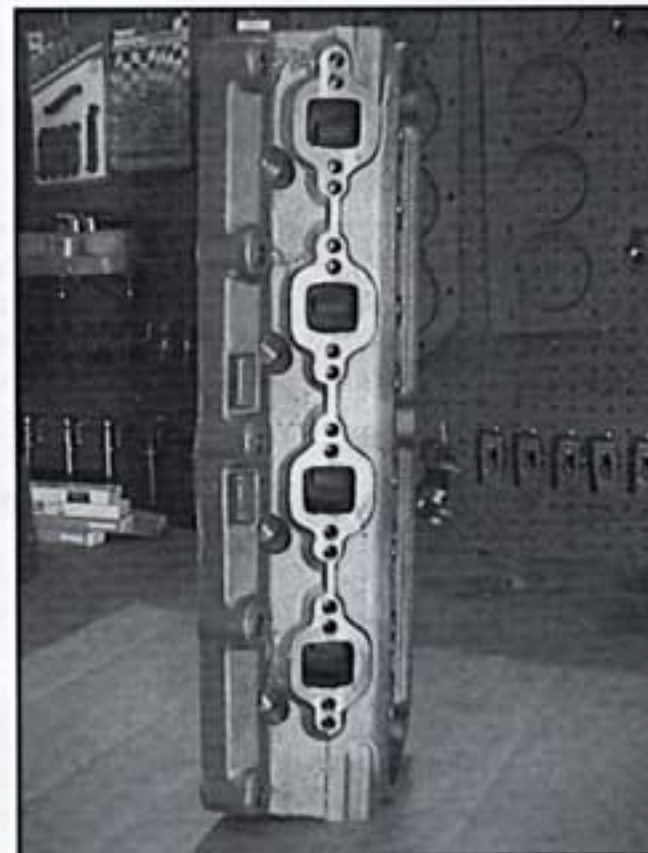
### World Products Windsor

Material .....	Iron or Aluminum
Intake Runner Volume .....	200cc
Combustion Chambers .....	64cc
Spark Plug Location .....	optimized
Valve Spring Pockets .....	1.550"
Valve Guides .....	Integral Steel
Valve Sizes .....	2.020"x1.600"
Maximum Valve Size .....	2.080"x1.600"
Rocker Stud Bosses .....	Screw-In Style
Intake Port Size .....	Fel-Pro 1250
Exhaust Bolt Pattern .....	Dual

Both heads accept screw-in rocker arm studs for full adjustability. Drilled pushrod holes require hardened guideplates. Both heads have 1.550" spring pads. Fully machined valve cover rails resist leaking.

### World Products Windsor Jr.

Material .....	Iron or Aluminum
Intake Runner Volume .....	170cc
Combustion Chambers .....	58cc
Spark Plug Location .....	optimized
Valve Spring Pockets .....	1.550"
Valve Sizes .....	1.940"x1.600"
Valve Guides .....	Integral Steel
Rocker Stud Bosses .....	Screw-In Style
Intake Port Size .....	Fel-Pro 1250
Exhaust Bolt Pattern .....	Dual



Windsor and Windsor Jr. cylinder heads feature dual exhaust flange bolt patterns. The inner set accepts OE exhaust. The outer set allows for custom big tube headers. Exhaust ports are in stock location yet are significantly larger than OE.



### WINDSOR ALUMINUM

Aluminum versions have a slightly different exhaust flange as well as different rocker stud bosses. Note the name Windsor cast directly into the valvetrain area.



## Merlin™ and Merlin™ VR: Cast Iron and Aluminum Cylinder Heads for Big Block Chevy



"I-043" is cast below the left-most intake spring pocket. The letter (B, C, D) designates port size/shape. I-043B: 345cc rect port, I-043C: 310cc rect port, I-043D: 269cc oval port.



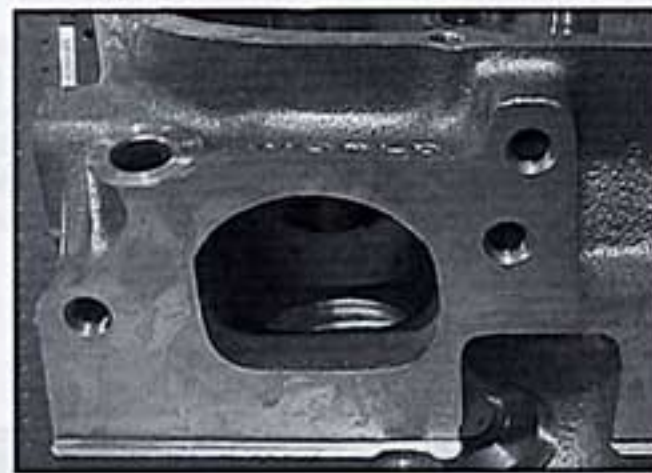
The name Merlin™ is cast on top of the heat crossover area. TIP: An easy way to tell a World casting from its competitor is to look for a heat crossover. Other brands have deleted this boss.



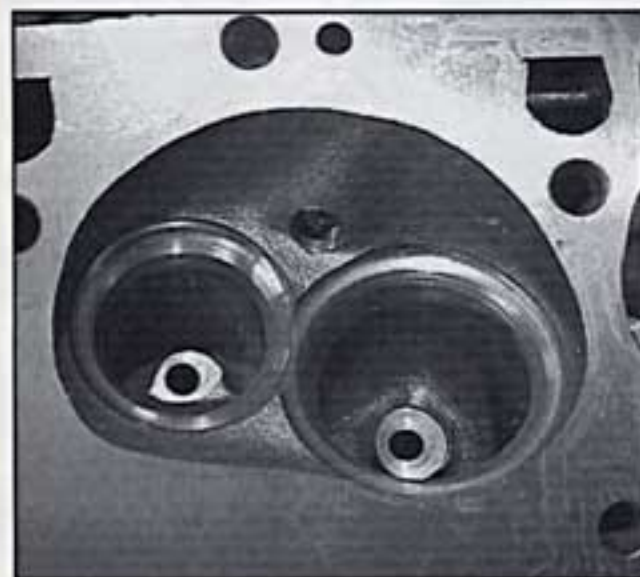
As with all World Products castings, the foundry mark is easily identified. On the Merlin™ the mark is cast on the left-most intake runner. Different foundries have been used through the years.



On all Merlins™ cast after March of 1998, the name "World" is cast on top of the first (left-most) exhaust port. The fourth port (right-most) states "Merlin". Aluminum Merlins™ have "Merlin" cast above all four ports. Be wary of Merlin™ copycats. The World Products Merlin™ has evolved over almost a decade of refinement. We've incorporated over thirty years of big block Chevy experience.



Merlin™ feature "D" shaped exhaust ports. Other brands and most OE castings have square exhaust ports. Extra accessory holes are cast above the first two exhaust ports.



All cast iron Merlins™ feature 119cc open combustion chambers. Aluminum Merlins™ come standard with CNC chamber porting. Unlike closed chamber heads or "semi" open chamber heads, Merlin™ open chambers are highly adaptable. Standard valve sizes are 2.190"x1.880" (Merlin™) and 2.250"x1.880" (Merlin™ VR).



At the time of this printing, Merlin™ aluminum heads were in the final pre-production stage. Aluminum Merlin™ casting marks may vary. Call our tech. support department for details. Aluminum Merlin™ heads are available in rectangular port only.

### World Products Merlin™ and Merlin™ VR

Material:	Iron or Alum
Intake Runner Volume Oval ...	269cc
Intake Runner Volume Rect ...	310cc or 345cc
Combustion Chambers	119cc
Spark Plug Location	Optimized
Valve Spring Pockets	1.550"
Standard Valve Specs	2.190"x1.880"
Standard Valve Specs	2.250"x1.880"



**THE  
ENGINE CASTING  
PEOPLE**

World Products, Inc.  
35330 Stanley  
Sterling Heights, MI, 48312  
810-939-9628  
810-939-8153  
[www.worldcastings.com](http://www.worldcastings.com)