



# Newsletter



## PRESIDENT'S MESSAGE August 2012



Well,, it is August already and you know that means Sept. is swiftly approaching and with that, it brings Motor Magic and the GREATEST SHOW ON EARTH, the Season Finale! Some do think it is the best rod run all season and just wait around all summer for it.

I have been getting around the state and up into Canada for a few shows and runs since my return from the East coast. A lot of small towns are having their class reunions, all school reunions, centennial celebrations and all kinds of activities. They are fun to go to and you can tell the ones that put a lot of effort into the different activities. One of the neatest ones coming up in August will be the Show-N-Shine at Minot AFB on the 17<sup>th</sup> of August. We'll be leaving MLT parking lot on North Hill around 3:30 in the afternoon. Pre-registration is a must for this show. Free t-shirts, prizes, free food and a whole lot more. Keep it in mind. Dave Smith and I can get you information if you need it.

Motor Magic this year will feature all of the past "Car of the Year" honorees. Each year the center room has special cars and trucks in it and this year it will be these. We will invite the cars and their owners for the display. If a car can't make it because it is not available or has been sold, we will ask for that person to have at least their plaque and/or a picture of the car for the display. Should be very interesting to see all of these together for the first time. Remember, we will be passing out a sign-up sheet and maybe you could plan an hour or two to help man the table for the club. Actually, it is fun!

The Season Finale will also be on hand for September. It is coming together nicely and it should prove to be one of the best! We have some new ideas that are being attempted, so hopefully you will attend and enjoy a special weekend with your car. The Canadians were all fired up and have sent in a bunch of registrations last weekend in Brandon. That's KQQL!!!

Well, short and sweet this month. Be safe and careful as you drive around this wonderful countryside. It's the simplest of things that can "GET-CHA"!!!

George

# Classifieds

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**The greatest compliment you can give is a referral.**



1999 Plymouth Prowler, Purple convertible, under 27,000 actual miles, all power options, very clean & well cared for. \$27,500 or make offer / trades?? Packard, Hudson, Jeep, and AMC - you know, the stuff no one else wants!!

Going to Pa & Vt approx. Sept or end of Oct with an empty car trailer. Anyone know of anything needing hauled; we should be able to work a good deal for both parties.

Dan Caswell 701-839-5820

Car Dolly for sale only \$2,000 & 1978 Chinook motorhome  
Call Doug @ 701-721-7203 to view.



*Ignorance can be educated*

*And crazy can be medicated*

*But there's no cure for stupid*

# The Novak Guide to The Chevrolet Big Block V8 Engine

In its most familiar and long-running format, the Chevrolet Big Block was Introduced in 1965 as a 396 CID powerplant and from that time forth, it has earned its own place in automotive history as one of the most well known tour-de-brute-force engines on the market.

Known for knock-out power and high revving capabilities, the Big Block V8 is respected worldwide as one of the most impressive engines of our era. There are many larger Jeeps into which these engines can be converted.

## A Dose of Chevrolet Engine History

As early as Chevrolets were on the road, they were developing a reputation as cars with an edge on performance. Chevy's first V8 was actually introduced in 1917. It was a 90 degree, overhead valve engine. It was produced for only two years - as Chevy got into four and six-cylinder power instead for the "smaller" cars they were then producing.

Cadillac probably initiated the horsepower war when it introduced its new V8 in 1949. However, Chevrolet would soon bring it to the popular level with its historic Small Block V8 in 1955.

## Mark I, W Series Big Blocks

The first generation of Chevy big block engines was an important precursor to the Big Block as we recognize it today. This was the 1958 W Series engine. These motors ranged from 348 to 409 to 427 CID, developing up through a [factory claimed] 430+ horsepower and 435 ft. lbs. of torque.



The Chevrolet Big Block V8



The Chevy V8 is sometimes called the "Rat" motor, a take-off from the popular term "Mouse" motor, given to the Small Block by its enthusiasts.

## The Mark II Big Block

The design work for an essentially new, second generation big block began in 1962, and by February of 1963, Chevrolet showed up to Daytona armed with fresh, 427 CID big block power.

The Mark III was a blip worth mentioning in that it was merely a design study stemming from the Mark II, but with wider bore centers for which GM was reticent to invest in its tooling. Rumors swirled and significant redesigns occurred and GM was onto...

## The Mark IV Big Block

In model year 1965, Chevrolet released its new Big Block as most of us know it. It was the 396 CID in its flagship Corvette model, featuring an introductory 325 HP / 410 ft. lbs. This engine featured an innovative valve layout in the heads that allowed it to be a highly favorable architecture for high-revs, despite the engine's notable torque and larger size.

1966 saw the release of the famous 427 and with it the horsepower wars headed into their glorious crescendo, and from 1966-1969, several special versions and multiple variations were released by GM with horsepower reaching as much as 430 HP and torque reaching as much as 485 ft. lbs.

## The Engine "Swapping" Phenomenon

In the fifties & sixties, the stage was set like this: people had Jeeps they loved, which had engines they did not. Simple popular interest soon propelled the V8 into the forefront of a burgeoning hobby of "engine

For the 1970 model year was released two Big Block variants. One of them was the 402 CID; a 396 bored .030" over. More significant for this year was the advent of the 454 CID (or 7.4L). In this engine, power reached 460 HP / 490 ft. lbs. in regular production tune and probably peaked at nearly 650 hp in special GM tune at the top of the muscle era this year with race and drag applications going beyond that.

The 427 engine continued to be produced for the Corvette through 1974 and some Chevy cars through 1975. They saw uninterrupted service in many models of Chevy / GM trucks through 1995. The motors did begin to see detuning in the fuel-crunched 70's in addition to tangling emissions controls certainly didn't help the situation.

### **TBI Fuel Injection**

Having proved their successful Throttle Body Injection (TBI) system during the 1987 model year for the Small Block V8 and Small Block V6 line, GM introduced TBI to the Big Block in 1988, using the same ECM and code, with only the injector and throttle-body size being increased to match. This system continued in use through 1995, overlapping onto the next generation of Big Block to be released.

It should be noted here that carbureted and TBI engines were produced concurrently through 1995, the former being delivered from GM to various its transportation and industrial buyers, including bus and watercraft companies, making these the last of the GM engines to hang on to carburetion.

### **Generation V**

In 1990 for the 1991 model year, GM released significant design changes to create the Gen. V Big Block, reflecting changes in both the engines and GM's naming conventions. Just as they had done for the Small Block in 1986, the Big Block got a one-piece rear main seal. All main caps went exclusively to four-bolts, and the main oil galley location was moved from the oil pan rail up to the camshaft tunnel. The valvetrain went from adjustable to non-adjustable. The use of TBI continued and because of its permanence, the now-obsolete mechanical fuel pump boss was removed from the block. Also significant was GM's move to aluminum valve covers, away from the classic stamped steel versions.

### **Generation VI**

1996 was a watershed year for the automotive industry as they moved to OBD II diagnostic standards, which often coincided with the release of culminating powertrain technologies across several brands. This was no less true of the wonderfully persistent GM Big Blocks. As such, the 454 Big Block was reappointed with Sequential Fuel Injection in 1996 and successfully met On Board Diagnostics II standardization and efficiency requirements and was dubbed the "7400 Vortec", a moniker that drew from the popularity of Chevrolet's torquey 4.3L Vortec V6.

Significant mechanical changes were few and included the upgrade to an aluminum front cover with an integral timing tab.

### **Generation VII**

Five years after its most recent and significant changes, and four years after the release of the history-changing Generation III GM Small Block V8, the Big Block would now receive its just desserts and be almost entirely redesigned and then outfitted with the same advanced control system as the Gen. III LS / Vortecs, and with terrific results.

This 2001 Big Block was a stroked version of its 454, with displacement up to 494 CID

or 8.1L and therefore dubbed the '8100 Vortec'. Just as revolutionary was the move to the coils-near-plugs design.

Far from being a classic Chevrolet Big Block overlaid with advanced controls, the Vortec 8100 was 90% redesigned, sharing only bore centers, valve centers, bore and diameters with the previous 7.4L V8. The intake manifold on the Vortec 8100 is of cast aluminum, but the block and head of this engine are still made of cast iron in an industry that is otherwise moving steadfastly to aluminum alloys.

swapping." Jeeps were amongst the first recipients of these motors. One writer on this topic in the early 1970s estimated that there were upwards of 60,000 Jeeps that had been swapped to Chevy or Buick power. We don't know where he got his numbers, but it is hardly inconceivable.

In thousands of conversations by phone and mail, we regularly and invariably get the question, "Why Chevy power? Why do you not push Ford and Mopar conversions as much as GM swaps?" GM swaps are, very simply, what so many people are asking for, and in increasing numbers. Since the late fifties, Chevrolet power has found its way into nearly any vehicle with wheels. Everything from MG's, to Jeeps to motorcycles. So much so that it is even understood on the popular level, as evidenced by an episode of the television show Home Improvement, where Tim Allen proposes putting a Chevy 350 into the vacuum cleaner.

GM swaps promote themselves because they are so good for so many reasons. Take it or leave it, most swappers will get more value for their money and time with a GM swap because they are well documented in literature, well supported in parts and they often make very good mechanical sense.



The compression ratio on this generation of engine was typically 9.1:1, and HP up to 330 HP and 450 ft. lbs. of torque. Unique to the Vortec 8100 over many contemporary engines is its returnless fuel system with anti-reflux valve. GM equipped vehicles of this engine can include the 2500HD / 3500 series trucks, including the Avalanche, Silverado, Suburban, Sierra, Yukon XL, up into the medium duty trucks like the Kodiak, TopKick and Workhorse.

In 2006, the 8.1L was fitted with an electronic throttle-by-wire or Electronic Throttle Control system, similar to that introduced on the 1997 Corvette LS1 and the 2001 Small Block Vortec series engines. Additionally, the EGR valve was removed due to the advanced burn characteristics provided by the advanced PCM control system.

### **Practicality: Big Block vs. Small Blocks**

Through the years, GM discovered what outside performance circles have previously known; that its Small Block V8's (thanks to tuning at GM and on the aftermarket) could develop nearly equivalent amounts of power to many factory tuned Big Block V8 motors. Given the engine weight and its associated cost of materials, manufacturing expense and political/customer expenses in fuel economy, GM morphed its new Generation III Small Block engines into high-output (gloriously high, in some cases) versions ranging from 4.8L to 6.2L versions.

Though there are factory Small Blocks that can achieve the 340 hp and 455 ft. lbs. of torque, the Big Block can do so continuously under heavy-duty situations over longer periods. As such, the Big Block motors have been relegated to the bigger, medium duty trucks, especially in light of the diesel motors now available in many GM truck applications.

### **Big Blocks & Jeeps**

These V8's can make for very respectable sources of motivation in full-size trucks delegated to heavy work and tow duties. Big Blocks have been installed into a variety of Jeeps, especially the wide-frame variety such as the Full Size Jeeps and YJ Wranglers. Big Blocks have little place in most narrow-frame Jeeps (CJs, TJ Wranglers, XJ / MJ Cherokees, etc). The installer should consider the weight, economy and power factors in planning out a Big Block swap in any Jeep. With so many power options available for the GM/Chevy Small Block V8, there are few situations where it would not be an overall superior choice to the Big Block.

### **Summary**

Of course, the mechanical history of the Chevrolet Big Block V8 motor is much richer than this synopsis, and we do recommend more research and reading for the enthusiast. However, as there are some important mechanical details that are pertinent to Chevy Big Block swaps in Jeeps.



The glorious re-release of the 427 in 2008. The first one was auctioned off at Barrett-Jackson. 427 hand-built models are to be made. GM's description includes the glorious phrase, "The 427 lucky owners of this commemorative monster can expect a grossly underrated 430 horsepower and 444 lb-ft of torque."

### **Sources:**

- The Novak Knowledge Base (and its 43 years of customer input)
- GM Powertrain
- GM Performance Parts
- Wikipedia

# AUGUST

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			<b>1</b> Meeting at the Vegas @ 7:30	<b>2</b>	<b>3</b> Noon luncheon call the hotline for location	<b>4</b> Thief River Falls-car show
<b>5</b> Bismarck-Car show	<b>6</b>	<b>7</b>	<b>8</b> Cruise to the Scandinavian Park-ice cream social leave Hardee's 6:30	<b>9</b> At the Hop Scandinavian park 7pm	<b>10</b> Noon luncheon call the hotline for location  Watford City-car show/ribfest	<b>11</b> Pierre, SD Dam run 10-11
<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b> Cruise to Granville City Park-BBQ & potluck leave Hardee's 6:30	<b>16</b>	<b>17</b> Noon luncheon call the hotline for location  MAF-Show-n-Shine	<b>18</b> Festival on Main Street-downtown Minot
<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b> Cruise to Velva City Park-BBQ leave Hardee's 6:30	<b>23</b> Kool Deadwood Nites 23-26  Deadwood, SD	<b>24</b> Noon luncheon call the hotline for location	<b>25</b> Aberdeen SD car show
<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b> Wild about Wheels meeting at Hardee's 6:30	<b>30</b>	<b>31</b> Noon luncheon call the hotline for location	

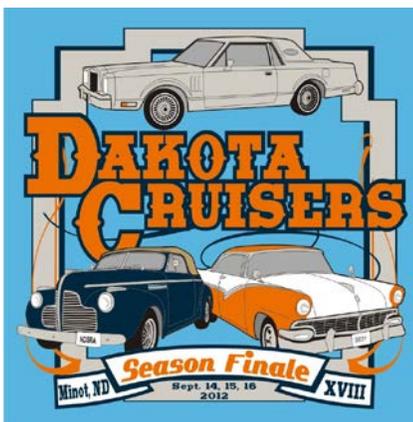
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Next General Meetings at the  
Vegas:  
Aug 1 & Sept 5, 2012