Chapter Two - 351C/FORD 366 NASCAR Engine Program, BOSS 429, 429SCJ and BOSS 302 6V

Topping both applications in rarity, are the Ford factory 6V manifolds made for the 351 Cleveland/Ford 366 NASCAR Engine Program, BOSS429, 429SCJ and BOSS302. These are so rare, the only way to find one is to keep close track in HEMMINGS MOTOR NEWS in the parts for sale sections, some of the better all Ford Swap Meets, e-Bay and Craigslist in the country, while checking with any and all of the vendors listed in this bulletin. I also keep listings on my web page of several vendors and enthusiasts who are buying and selling Ford 6V related parts.

In the 1969-70 period, Ford developed the 6V intakes for the 351C, 429 and BOSS429. Ford made a determination that NASCAR rules had no restrictions on using a 3x2 intake, so they embarked on a development program around their current 351C engine called the NASCAR 366 Program. The historical background on the NASCAR 366 Engine and 429SCJ 6V and BOSS429 6V, was shared with me by Tom Vaught of Ford Motor Company.[1] They designed and built 500 366 engines plus 6V intakes and went to Holley to develop a set of carburetors for the program. They used a set of List 4782/4783 vacuum secondary carburetors for the motor. During the testing, it was determined that the 1355cfm size of the carburetion was too much for the size of the motor, so Holley sleeved these carburetors to reduce the airflow. Once the testing was done, Ford presented the planned engine and carburetor package to NASCAR for approval. In preparing for this, Ford actually produced 500 Ford 366 engines; each equipped with the new alum Buddy Bar Casting 3x2 intake manifolds and sleeved Holley 4782/4783 carburetors. Unfortunately, NASCAR said "No" to Ford who immediately ordered the destruction of all 500 of the NASCAR 366 engines, 3x2 intakes and the specially built Holley sleeved 6V carburetors . Over the course of a week, Ford employees physically

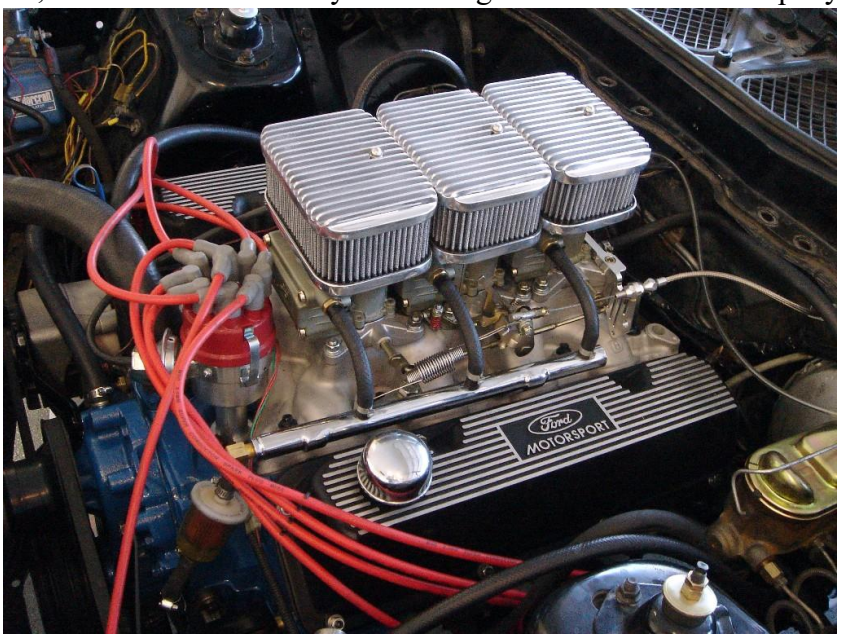

Figure 1 Ford 351C 6V Carburetion with O'Brien Trucker's Air Cleaners

[1] (Vaught, 2004)

destroyed these pieces of performance history. Fortunately for the few lucky current owners of 351C 6V intakes, a few brand new bare 6V intakes which were hiding away in engineering spaces escaped the sledge hammers and are around today. As for the sleeved Holley 2300 carbs, a very few still exist, carefully held by people who knew the value of these special pieces. Recently, a Ford 429SCJ 6V intake manifold held by a person connected to Buddy Bar Casting in Los Angeles was purchased and with it came a single sleeved Holley 6V carb. They are very rare.

After the decision to eliminate the 366 program, Ford advised Holley they were no longer interested in the Ford/Holley developed List 4782/4783 2300 6V carbs, so Holley contacted General Motors to see if they were interested in these carbs. They told Holley "No," so Holley offered them to MOPAR who jumped at the chance. Holley made some changes to the carbs, converting them from vacuum secondary to full mechanical with full metering plates, which were thereafter offered as competition carburetors to MOPAR owners who wanted a little more performance out of their SixPack equipped 340 and 440 motors. Edelbrock produced a set of mechanical-progressive linkage along with a fuel log for these carburetors and the overall package allowed any MOPAR SixPac owner to get rid of his vacuum secondary carburetion and convert to full mechanical progressive 3x2 carbs which flowed a total of 1355cfm.

Figure 2 Author's 429SCJ 6V Carburetion with Holley List 4782/83 Carburetors

The final piece of this story is that the original Holley List 4782/4783 vacuum carburetors without sleeves were intended for the 429 and BOSS429 6V intakes if and when they eventually went into production. This never happened as the program was cancelled, leaving the few 6V intakes to hide on engineers shelves and in backrooms of Ford program engineers and select Ford racers such as Jack Roush.

My original photos of the 351 Cleveland 6V manifold and carbs were provided by acknowledged Holley 6V experts, Joe Bunetic,[2] Ron Miller from Ford Power Parts and Bob Champion, a Cleveland 6V owner. With this edition, I have replaced some of the photos with better photos of the other very well built Cleveland 6V's around the country and world. In talking originally in the early 1990s to Joe Bunetic about the Cleveland tri-power, the several Cleveland 6Vs of which he has custom built, including Bob Champions', Joe said used a set of MOPAR or Corvette vacuum secondary Holley 6V carbs, custom built carburetor linkage, fuel log and air cleaner on the customer owned manifold. Unlike the small and big block 6Vs which

[2] Joe Bunetic of Fairview heights, Illinois is an expert on Ford Holley 6V Carburetion. He is the fellow the Holley Technical people will refer you to should you ask them any hard questions about Ford 6V Carburetion. Joe buys, sells and restores Ford Holley 6V's, in addition to custom building Holley 6V carburetion for customers with manifolds, but without carbs. He also custom fabricates linkage, fuel logs etc. He is a national authority on Ford 6V carburetion and is usually available days or evenings by telephone only at 618 397-3580.

share the same carburetor spacing on their respective manifolds, as well as throttle plate openings that are suited to carburetors of no larger size than 350cfm, the pictures reveal unequal spacing between the front or forward carburetor and the center carburetor versus the rear carburetor, necessitating a custom made bottom plate in order to fit the original Ford oval shaped 6V air cleaner. Further, if you look at the openings for the throttle plates, you will note that the center mount is

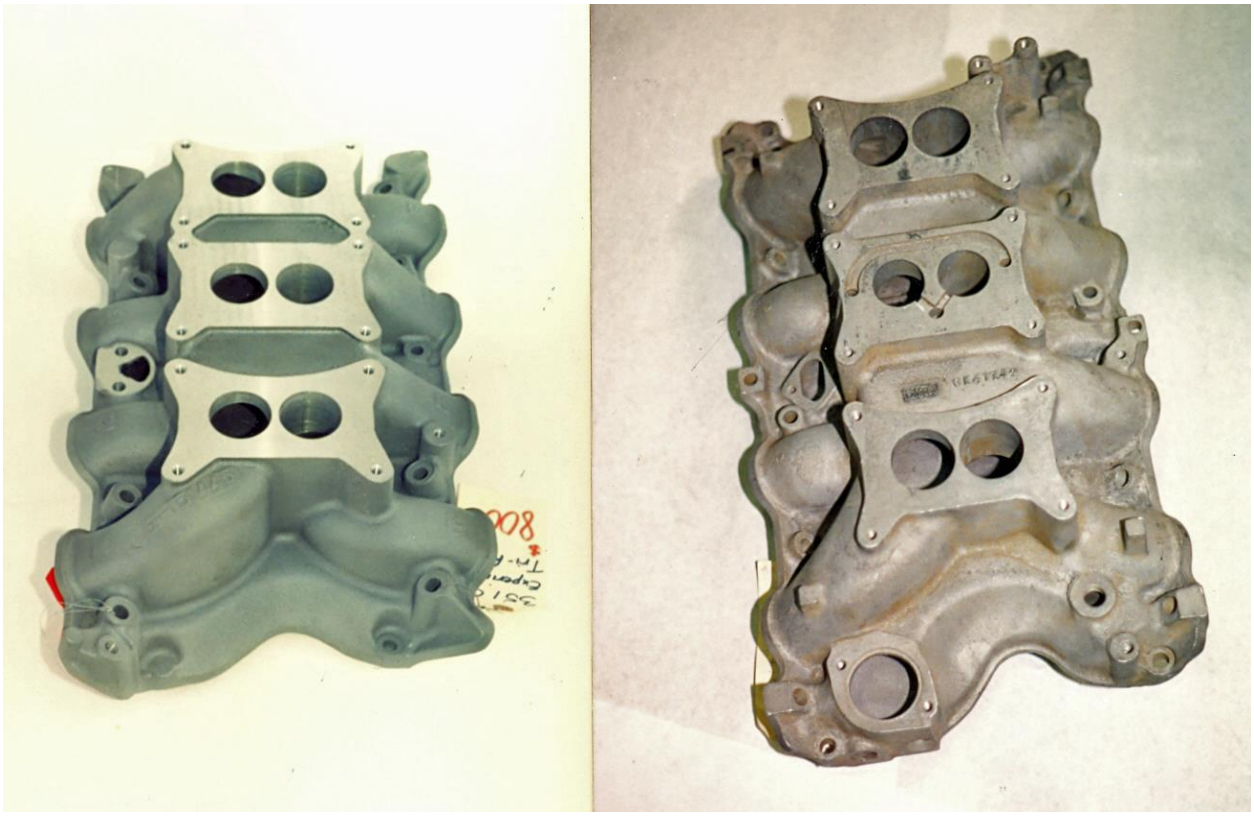

Figure 3 351C 6V/429SCJ 6V Comparison

machined for a 350cfm carb while the outboards are machined for the much larger 500cfm carbs which come with the Corvette (actually 466CFM) and MOPAR Holley Tri-Power setups. This unequal spacing relationship is similar for the 429SCJ 6V manifold, as well as the BOSS429 6V. Thus, for enthusiasts who happen to come upon a bare 351 Cleveland,BOSS429 or a 429SCJ manifold, the Holley vacuum secondary 6V carburetors and Holley List 4782/4783 progressive-mechanical carburetors are the only candidates for these manifolds (Chapter 9), except for the 351C which can only use Holley 2300 vacuum secondary carbs. In order to make the vacuum secondary 6V carburetion setups work on the 351 Cleveland 6V, the user must substitute the side hung fuel bowls for the normal center hung fuel bowls found on the Corvette and MOPAR Tri-Power Holley carburetors. The Cleveland does not have the space to use them in their stock from the factory form while the 429SCJ and BOSS429 do. The 429SCJ and BOSS429 6V spacing is identical to the MOPAR and Corvette Tri-Power intake spacing arrangements, while

the 351C is different. The Holley List 4782/83s are the preferred set of 3x2 carburetors for any 429 and BOSS429 6V intake manifolds.

Speaking of a special intake for a Ford, the most unusual multi carburetor intake manifold is in the possession of Rick Kirk in his Oklahoma Museum of Ford performance items. The intake is a special aluminum 351C intake which is convertible or interchangeable between a single two barrel, dual four barrel, single Autolite inline four barrel or a 3x2 intake. This intake was designed by Don Sullivan, a former Ford engineer who designed this intake while at Autosport Products Inc., the parts division for Shelby Equipment Company/Autosport Inc.[3] Commonly called the 351C Interchangeable Intake, this creative intake manifold was produced in very limited quantities. Rick Kirk's personal 351C Interchangeable Intake was pictured and discussed in the October, 1999 issue of MUSTANGS & FORDS Magazine. Such interesting pieces just add to the creative mystique which has prevailed at Ford over the years. In recent years, I have had direct contact with several other owners of 351C Interchangeable Intakes who have shared pictures with me, including the two in this bulletin (Figures 14 & 43).

Interestingly, besides the Ford 366 Engine Program/351Cleveland 6V intake manifold which was originally intended for NASCAR racing, Ford also produced a 6V manifold for the BOSS429. As one would imagine, both setups were and are, very rare indeed. Both were experimental, coming with an "SK" number and so very few were ever produced. Joe Bunetic gave me the name of a very proud owner of a BOSS429 6V manifold. Gary Poling of China Grove, North Carolina, Parts Manager, Hendericks Motorsports, currently owns one BOSS429 6V manifold. Ford also made a 6V manifold for the Ford 429SCJ. Gary, when I first spoke to him in 1994, owned two BOSS429 and one 429SCJ 6V intakes but

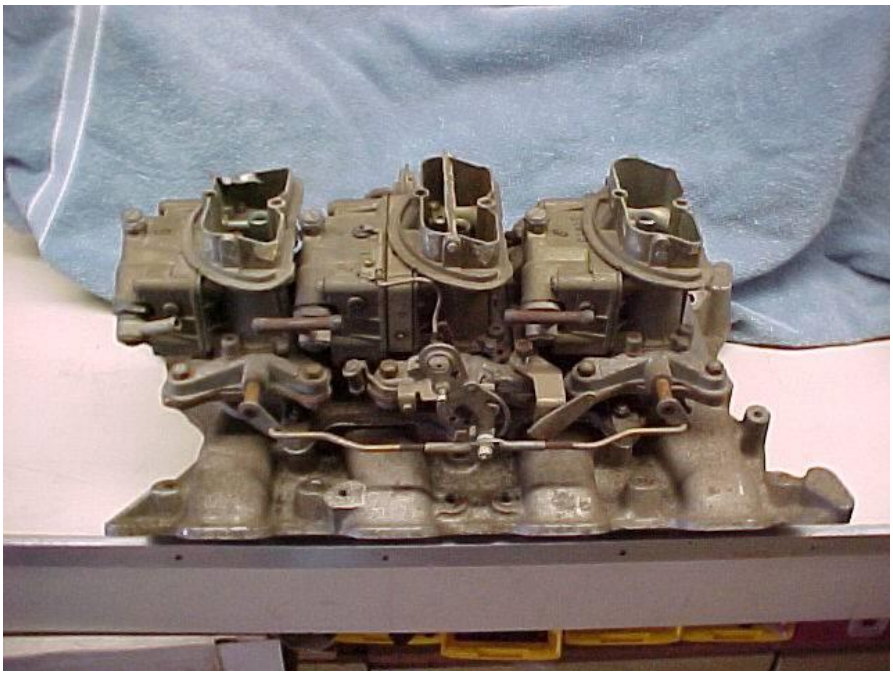

Figure 4 351C Interchangeable Intake with 6V Top Plate and Corvette Holley 2300 Carburetors

[3] (Green, 1971)

has since sold all but one of his BOSS 429 intakes. He purchased all of them directly from none other than Jack Roush.[4]

I had my first occasion to examine the 429SCJ 6V manifold in April 1994 while visiting Ron Miller of Ford Power Parts at the Pomona Swap Meet. A truly impressive manifold, which likewise carries an impressive price. Since then, I have wanted one of these rare intakes for my current Willy's Project and when one came available in Illinois, I purchased it from Doug Sulko in July, 1997, which had been run previously and came with a set of Corvette Holley 6V Carburetors, linkage, fuel connections and a put together air cleaner using a top half of a traditional Ford Thunderbird 6V air cleaner.

Since getting the 429SCJ intake, I have collected a full set of MOPAR SixPac Carburetors (1350CFM), in addition to the Corvette Tri-Power Carbs (1282CFM) which came with the intake. Not being real excited about running MOPAR or Chevy style carbs on this very special Ford 6V intake, I played with my own idea to build mechanical, full metering block progressive Holley 6V carburetors and did.

I decided to convert a Holley List 7448(350CFM) (center) and two Holley List 4412s (500CFM) (outboard) to use on my 429 6V intake manifold. Because these carbs are popular with the local circle track crowd, I was able to find mine used in our local swap meet at good low swap meet prices. Each airhorn needed extensive rework, including cutting, grinding, etc.; to give them the required half moon shape as well as allow them to fit in the reduced spacing of the 429SCJ intake, including replacing the center hung fuel bowls with side hung Holley fuel bowls. I used a Ford Holley 6V Cork Gasket to help get the right dimensions to the airhorn mount for the air cleaner. From here, I took the jet and power valve requirements from the Holley List 4782/4783 carbs and removed the existing jets and power valves and replaced them with these specified for the 4782/4783s, including plugging the power valve openings in the outboard carbs and removing and replacing the throttle plates and using the solid ones sized to fit these carbs (the original outboard carb throttle plates had two very small holes in each for idle requirements) as found in a normal Ford 6V Outboard carb. These changes were important to duplicate the idle adjustment characteristics of these custom carbs in the eye of a normal Ford Holley 6V outboard Carburetor. For linkage, I used the Edelbrock P/N 2472 linkage (I bought mine from Summit) which is simple and bolts onto the 7448/4412 6V setup. It was designed and intended just for use on the Holley List 4782/4783 6V, but is simple and bolts right onto this custom Holley List 7448/4412 6V setup.

Ford 6V adjustment follows much the same simple advice used elsewhere in this book. At wide open throttle, all carbs should come to full open at the same time. With a little experimentation, correct progressive opening is both easy and straight forward. It is also important to insure that the outboard throttle plates are properly adjusted and that they are not

[4] (Poling, 1992)

allowed to stick in the throttle bores. Follow the guidance elsewhere in this bulletin for correct adjustment of the outboard carbs. This custom 6V setup is certainly not for everyone, but is a reasonable, inexpensive way to get Ford looking 6V carbs for your 429SCJ. As a minor benefit of using the 7448/4412 series as the basis for your 6V carbs, you get to use the full range of stock Holley choke devices made.

In 1999, I fired up my new Ford 466 with the 429SCJ 6V Intake with Holley List 7448/4412(highly modified mechanical progressive linkage carburetors) and the motor has run fabulously. I have used the basic procedures laid out in this book associated with the FE and Small Block 6Vs to adjust and set them up. These basic guidelines work quite well even with this unusual combination of carburetors on such a special intake. Late in 2000, I worked a deal on a set of Holley List 4782/83s from Joe Bunetic and installed the same using the same linkage and fuel line arrangement, finding these carburetors to be far superior to my own custom built carburetors. Overall, this intake with these carburetors works absolutely wonderfully on my built 466. It is very unfortunate that Ford or one of the many aftermarket intake manifold manufacturers did not put this intake into production.

The BOSS 429 manifold is, like all its Ford brethren, a aluminum low riser intake and appears from all descriptions to use the same spacing relationship as the 429SCJ 6V intake making it necessary for Gary Poling to run Holley Mopar/Corvette SixPac type carbs. Gary indicates the production of the 429 manifolds were the direct result of Ford's need to compete in the 1969-70 muscle car market with the MOPAR Big Block Wedge motored SIX PACK. Tom Vaught said the very same thing years later.[5] Buddy Bar Castings in Los Angeles, California made all special after market manifolds for Ford. Ford delivered the 429 manifolds to Jack Roush after development for pre-production use. Unfortunately, during the post developmental phase, the 429 program was mysteriously discontinued, leaving the developmental BOSS429 and 429SCJ

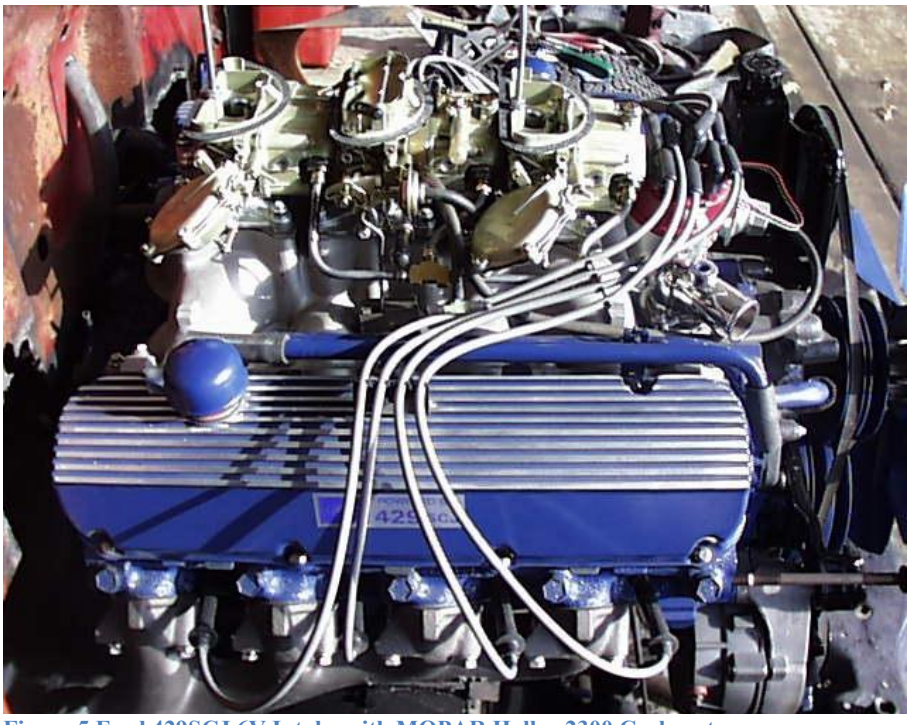

Figure 5 Ford 429SCJ 6V Intake with MOPAR Holley 2300 Carburetors

[5] (Vaught, 2004)

manifolds to hide on Jack Roush's shelf for over ten years until three were purchased by Gary in the early 80's. Currently, Gary's only remaining BOSS 429 6V manifold with a set of vacuum secondary, side hung fuel bowl Holley's resides on his Black BOSS '69 429 Mustang.[6] In discussing the possible numbers of these intakes as well as the 429s in existence, he believes there are no more than four or five BOSS429 intakes while there may be as many as 7 to 8 429SCJ 6V intakes. I now believe there were most likely ten developmental intakes made for each of these very rare Ford applications. Currently, I own one 429SCJ 6V intake, while there is another two in New Mexico, one in Oklahoma, one in New Orleans and one in Wisconsin. So there are very few indeed.

When it comes to air cleaners for these combinations, of course you have the individual air cleaners made by O'Brien Truckers which will work on any Holley 6V carburetor(Figure 11,18,30), with the half moon shaped airhorn opening. The stock Ford aluminum 3X2 air cleaner bottom plate can be modified by minor grinding so that it can be used on both the 429SCJ and BOSS 429 6Vs. As for the 351C 6V intake, a custom bottom plate would need to be made to support the normal Ford 6V Air Cleaner (Figure 40). In the case of the 429SCJand BOSS429 6Vs, any air cleaner made for the Corvette and MOPAR SixPac Holley Tri-Power Carburetors will bolt right on as the spacing relationship is exactly the same. As a minor piece of trivia here, Edelbrock has in the past made a very low profile single scoop air cleaner, Elite Series Air Scoops, Edelbrock P/N 4229, for the MOPAR SixPac, which will also work for the discriminating Ford 429SCJ or BOSS429 6V owner.

Lastly, not a lot is really known about the BOSS302 6V Intake other than like its 351C, BOSS429, 429SCJ and 260/289 6V cousins, was cast by Buddy Bar Castings in Los Angeles, California, with probably less than five ever made and still in existence. Unlike the 351C, BOSS429 and 429SCJ, close examination of the BOSS302 6V Intake indicates it was built to host Ford Holley 6V Carburetors. The best indication of this is the relatively smaller holes for the throttle plates which just happen to match the small 6V intake size and relationship. Thus, this intake was just one of several configurations considered by Ford, but

Figure 6 Ford BOSS302 6V Intake

[6] (Poling, 1992) (Wilson, 1994) For an excellent picture of Gary Poling's BOSS429 6V powered 69 Mustang, see the Tom Wilson article on the Mustang Club of America, 30th Anniversary Meet in the April 1994 issue of SUPERFORD Magazine. (Srtange, 1985)

which never went into production. Air cleaners, linkage, small block carbs should all work with the BOSS302, however, the stock fuel log will more than likely not work. Peter Sessler, a renowned automotive author, shared the included photo of the bare BOSS302 Intake Manifold (Figure 16) from his collection which went into his book.[7]

A review of the HOLLEY ILLUSTRATED PARTS BOOK shows no listings of Holley carbs for the 6V intakes for the 351C, BOSS429, 429SCJ and BOSS302 applications, although we know from Tom Vaught of Ford Motor Company that the Holley List 4782/83 series of 2300 6V carburetors was designed and developed originally for three of those applications. Premature cancellation of the programs was the reason why this information never made it into Holley's bible of carburetor information. The BOSS302 was designed to follow in the footsteps of the small block Ford 6V setups.

[7] (Sessler, 1998)