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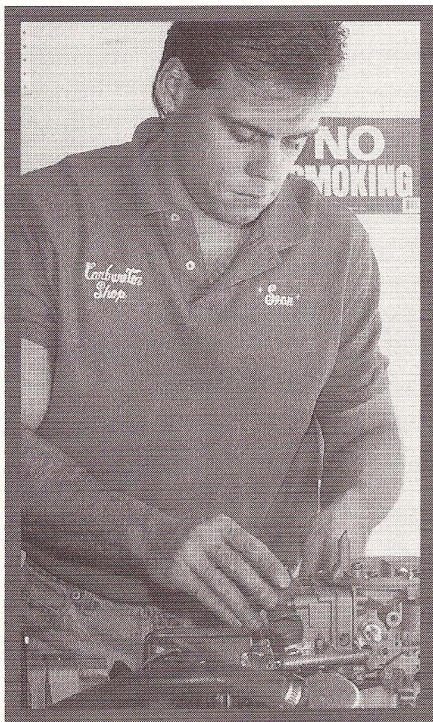


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CARB TUNE-UP



Sean Murphy of the Carburetor Shop bolts on our newly modified 750 Holley to their engine test stand. This is the last procedure in an in-depth process of custom tailoring a carburetor to specific engine applications.

Holley Tuning Tricks

By Larry Saavedra

While almost any carburetor out-of-the-box will allow your engine to run without too much problem, don't expect performance miracles until you're ready to experiment with different size jets, booster designs, floats and other refinements. Moreover, modifications like a cam swap, exhaust system, ignition upgrade and even head porting will all have to be taken into account when setting up a carburetor for your particular engine. These issues must be addressed if you're going to achieve 100 percent from any Holley or Rochester carburetor — especially if you think you've got a carburetor that is either too big or small for your particular engine size which happens all too often.

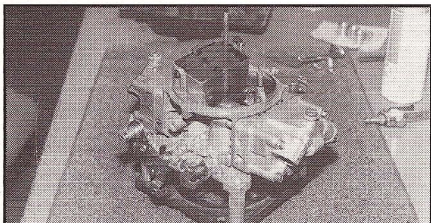
Take for instance a small-block 327 that we have been tinkering with for the past several weeks — it had a horrible stumble, cough and ran extremely rich. No ordinary tune-up pro

could help us.

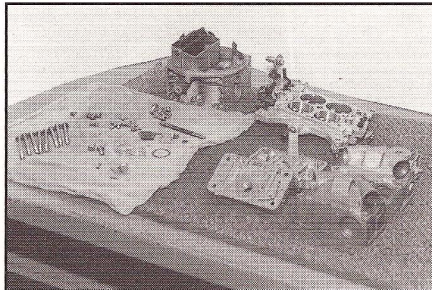
Since the engine used Dart, S/R heads that were ported, a 290-300° Wolverine cam, Weiland X-cellerator manifold and other goodies, we figured the out-of-the-box 750 cfm Holley double pumper was simply dumping too much fuel into manifold, and puddling at its bottom, causing among other things, back fire flames the size of Mount Fuji! So there we were, with a 750 too big for the engine and hesitant to spend the extra money on buying a brand new 650 cfm if an alternative could be found. That alternative proved to be Brad Urban's Carburetor Shop in Ontario, California.

The Carburetor Shop is considered to be an authority on Rochester and Holley carburetors. In fact, Urban's carburetor tuning skills are so often requested that all 183 Super Shops stores nationwide will begin to offer "custom tailored" Carburetor Shop carburetors and specialty parts. What this means to you is that you can now walk into any Super Shops with the confidence that you're going to get the right carb for your specific engine. You won't have to settle for universal carbs anymore! Moreover, you won't get stuck with a 750 cfm when a 600 cfm carb would be appropriate. Summit Racing Equipment and Racing Head Service already handle Urban's carburetors.

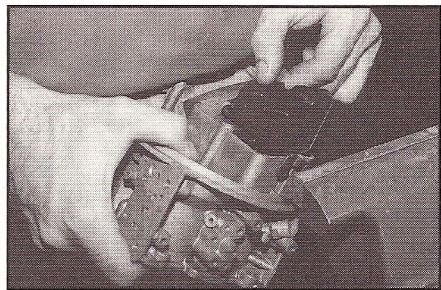
To begin custom tailoring our 750 cfm Holley, Sean disassembled the entire carb and readied it for the cleaning tank. Once Sean deter-



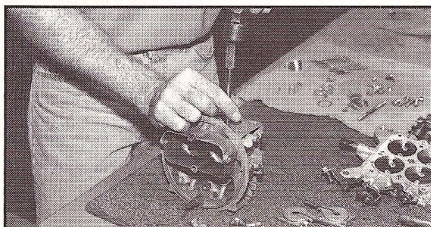
Out of the box, our 750 cfm Holley double pumper dumped too much fuel into our intake system, causing the engine to run extremely rich. A 750 cfm Holley in stock form is designed to run on a 300-400 cubic-inch motor and is one of the most common carbs sold. However, these stock carbs are "tuned-in" to specific upgrades you might have made to your powerplant and driveline (i.e. performance cam, heads, rearend gears)



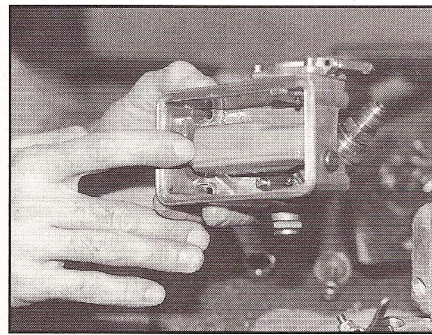
Here's a shot of the fully disassembled 750 Holley on a work bench.



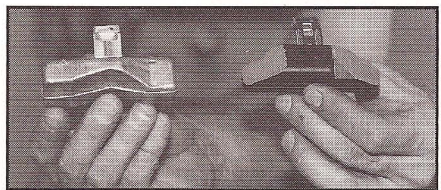
Sean is removes the choke assembly from the body of the carb.



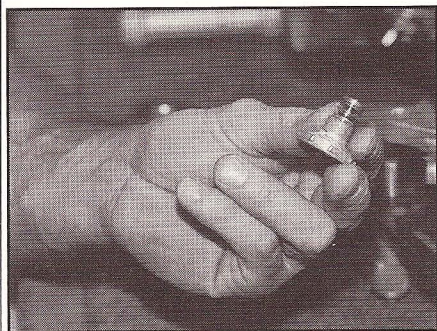
Sean uses a special punch to remove the stock "160 dog-leg" style fuel boosters on our 750 Holley.



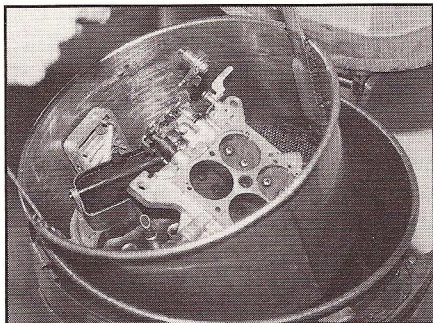
When we disassembled the carburetor we found the float level was set much to low, this caused hesitation in performance.



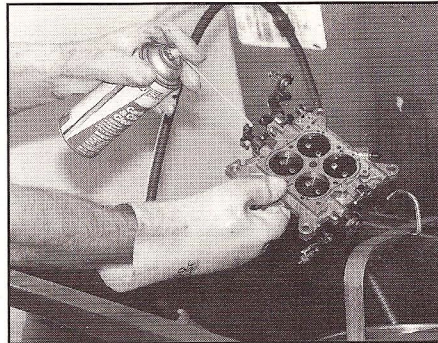
Floats are not all created equal. Here are two of the difference style floats used by Carburetor Shop. The float on the right is used primarily by "road racers". These Nytrofil floats are "cut" at angles on both sides of the float for fuel build-up during cornering. The cuts allow the needle and seat of the bowl to remain open and deliver fuel during hard corners. Carburetor Shop offers special floats for circle tracks and off-road racing, too.



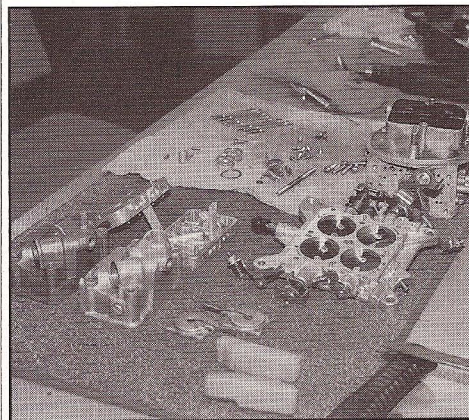
Sean inspects the power valve on the 750 Holley. Problems with the power valve are often associated with big cams that produce very low vacuum.



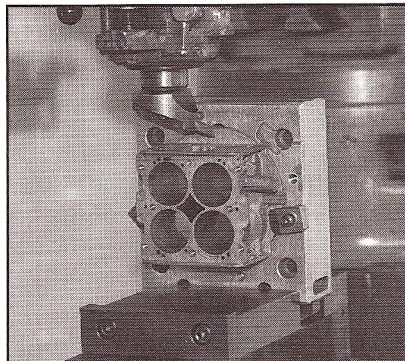
Sean prepares the carb parts for cleaning in a solvent wash.



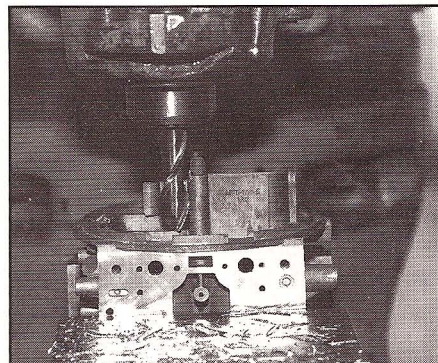
A carb and choke cleaner is used on the parts to get rid of any traces of solvent.



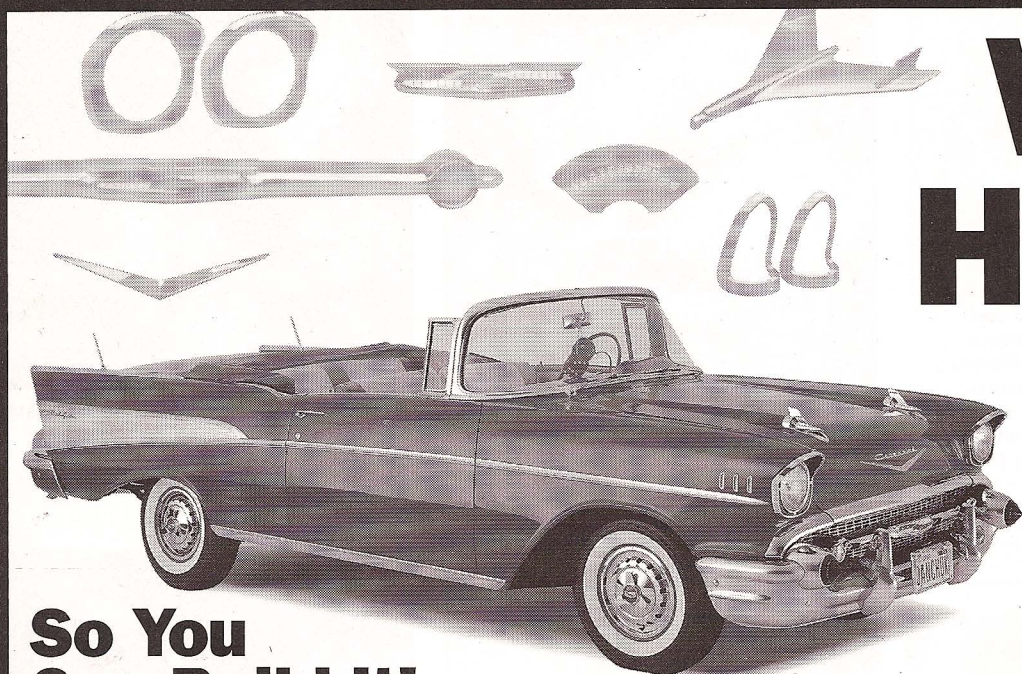
All the parts have been inspected and the carb is ready to be modified.



The metering and base plate surfaces are milled to ensure that all surfaces are completely flat and smooth during reassembly. Warpage is a common occurrence in used carburetors.



Since we seldom used the mechanical choke, we shaved the choke tower. That modification helped to equalize the airflow between the secondary and primary side of the four barrel.

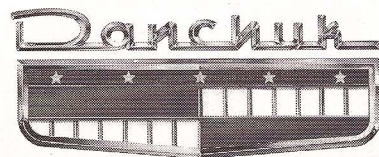


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CARB TUNE-UP

mined the specifics of our engine and powertrain (i.e. rearend gears, trans), he prepared to do a "Stage II" rebuild to concentrate on reworking the main circuits and changing over to Super Boosters (annular boosters) to improve the drivability and throttle response, while maintaining good top-end power. Next, Sean removed the mechanical choke assembly and stock boosters. While tearing the carb down further he discovered that the stock float level was down very low, which was one of reason for causing our throttle hesitation. Sean recommended that we replace the factory plastic floats with Nytrofil or brass floats because the stock white plastic floats from Holley have no dampening spring. That doesn't mean much on a smooth road, but on a hill or bumpy road they can cause erratic fuel levels in the bowl. Carburetor Shop floats are equipped with springs to prevent this problem and are even custom "shaped" (see photo) for specific styles of driving — from 1/4-mile drags to circle track racing.

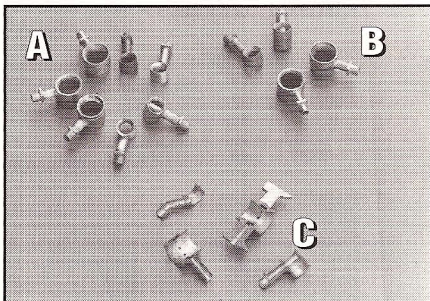
Now the parts were ready for the solvent

tank. After it sat in the tank for about 10 minutes, Sean sprayed off the parts with carburetor cleaner to get rid of the solvent and wash the excess carbon off the carb. After inspecting all the parts, Sean began to mill the main body surfaces (metering plate, base plate) because over a period of time these parts can warp, which leads to leakage between the circuits. That in itself will cause very erratic running and is extremely difficult to detect this problem, while the carb is installed. Since we didn't need our mechanical choke, Sean removed the choke tower to equalize the air flow between the secondary and primary side of the four barrel. After the milling process was over, Sean removed the fuel boosters, later to be replaced with their Super Boosters improving fuel atomization and signal strength to burn the fuel more completely. Super Boosters have a very fine misting characteristic to keep the fuel suspended in the airsteam, instead of puddling on the bottom of the manifold, which was happening in our application due to the stock "dog leg" style boosters that came with on our 750. The big advantage of a Super Booster is that it allows you to run a much smaller jet.

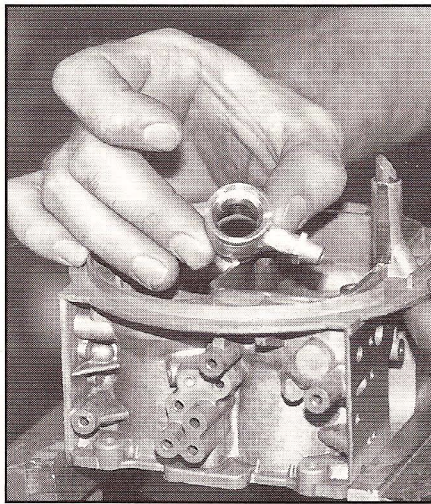
Next, the carburetor parts were then glass beaded and redyed a goldish color. Again for our application, Sean drilled small (.0089) holes in the primary throttle blades. This procedure is called an idle air by-pass and its purpose is to

allow air in during idle without having to open the throttle blade too much. This is done to eliminate a rich idle signal among other things. Moving to the back of the base plate, the vacuum boss was then filed down so it doesn't interfere with the bottom of the float bowl on the secondary side, which can make it difficult to change jets later on. From there, Sean installed the new jets on our carb. He selected 67 primary and 75 secondary, which were much smaller than factory stock. We were able to use smaller jets because Sean had installed very efficient annular boosters that draw much more fuel than stock boosters.

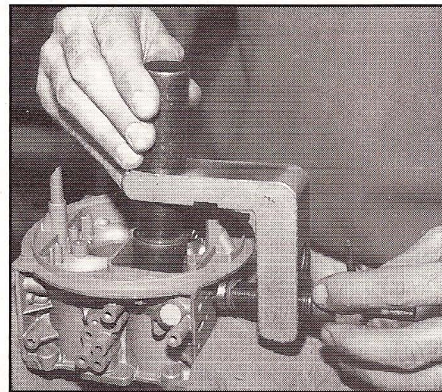
Even the gaskets became an issue in the buildup of the 750 Holley. Sean uses a nylon gasket kit because of their longevity opposed to paper gaskets. Now our new 750 was nearly complete and being readied for one last test on an engine test stand. Once installed on the engine, Sean checks for fuel or air leaks between the gaskets. In our case, the carburetor ran perfect and we immediately bolted it up to our small-block Chevy. Aside from some minor tuning work, the carburetor definitely made a big difference in the performance of our 327, as compared to the way it was running prior to reworking the 750 Holley. The engine didn't choke, stumble or shoot monster flames, instead it just ran and ran without any hesitation in the least. In fact, now that the choke tower and



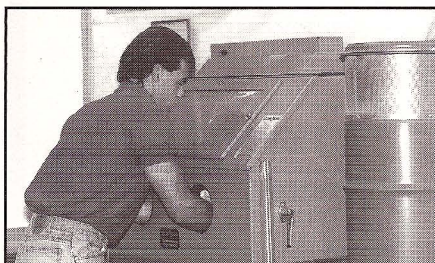
Here's a selection of the booster used during custom rebuilds at Carburetor Shop. In #A is a variety of the difference race and street boosters. #B shows several types used by Holley and #C is cutaways for the performance boosters from Carburetor Shop. We used Super Boosters on our 750 Holley to increase the signal strength of the stock annular booster from Holley.



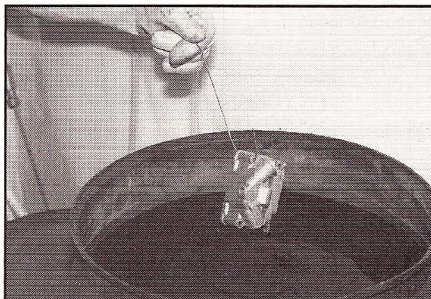
Sean installs a Super Booster in our 750.



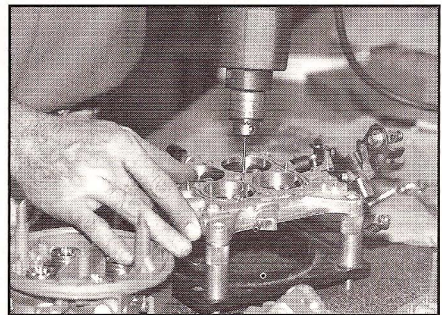
A special tool is used to keep the booster directly in line with the venturi during installation. This is critical to ensure proper fuel delivery in the carburetor.



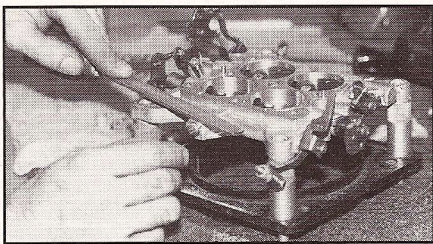
Here Sean glass beads the main body, metering block, float bowls, etc. to clean off the old brownish color of the Holley.



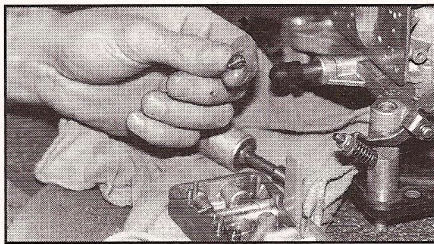
Sean dips the parts in a tank to give a fresh new goldish coloring.



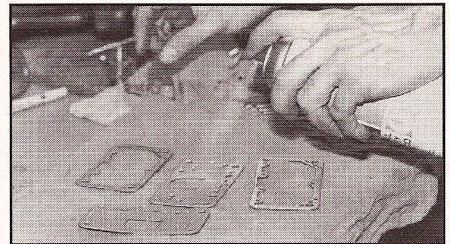
Air by-pass holes are drilled in the throttle blades.



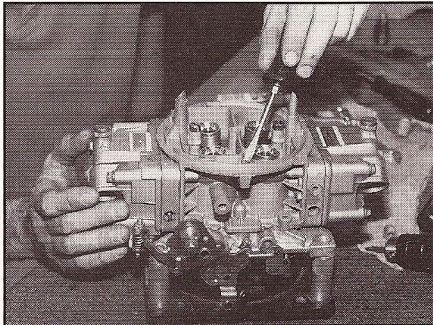
Sean files down the vacuum boss on the back of the base plate.



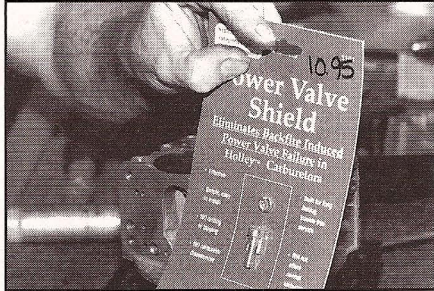
New jet selection!



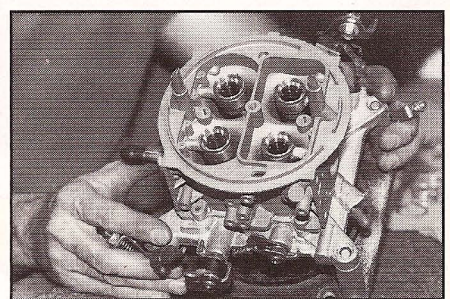
Nylon gaskets were used on the float bowl and metering block. These gaskets can be reused once treated with a silicone spray.



Here the main body installed on the base plate with the new Super Boosters!



Older Holley carbs can rupture power valve once the carburetor has backfired. This will then dump raw fuel down into the motor if not corrected.



Here's the final shot of the carb in all its glory!

assembly has been removed, our newly revamped 750 definitely has that "muscle car" look about it! And, considering it now flows approximately 840 cfm the upgrade appears to have made a major difference in our street per-

formance as well!

If you're interested in having your carburetor "tuned" to your specifications give the Carburetor Shop at call at (909) 947-9722 or write Carburetor Shop, 1457 E. Philadelphia #24,

Dept. AC, Ontario, CA 91761. Prices for an upgrade similar to what is being depicted begins at approximately \$200 (you supply the carb). **AC**

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