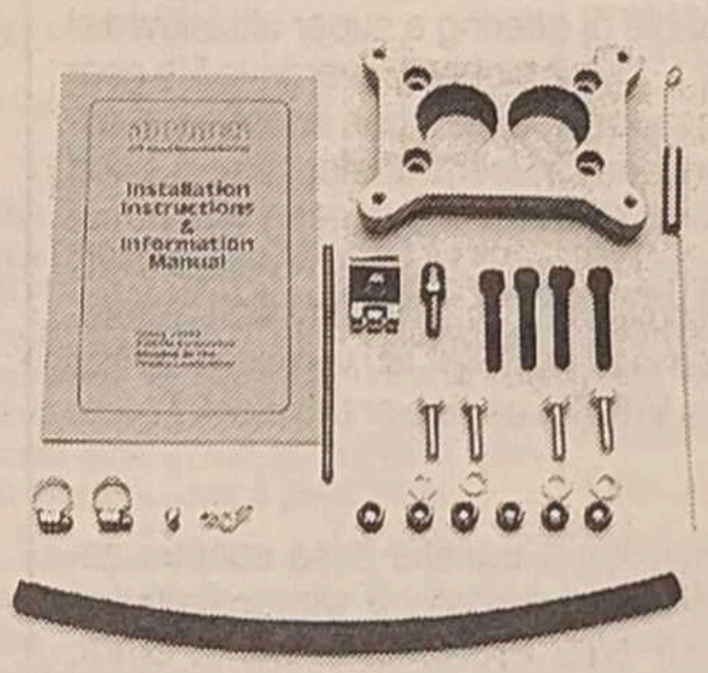
Gettin' The Most From Your Holley

The much maligned Holley 350 is still a good choice

By Rich Petrulio

Most every Land Cruiser owner, running the stock six cylinder, has wished for better performance. For many years that performance has come in the form of the Holley 350 two barrel carburetor. Unfortunately, the design of the 350 carburetor was not completely up to the extreme use conditions that go with off-roading. Because of that many Land Cruiser owners have become frustrated and disappointed with their Holleys. If only they had know the secrets!

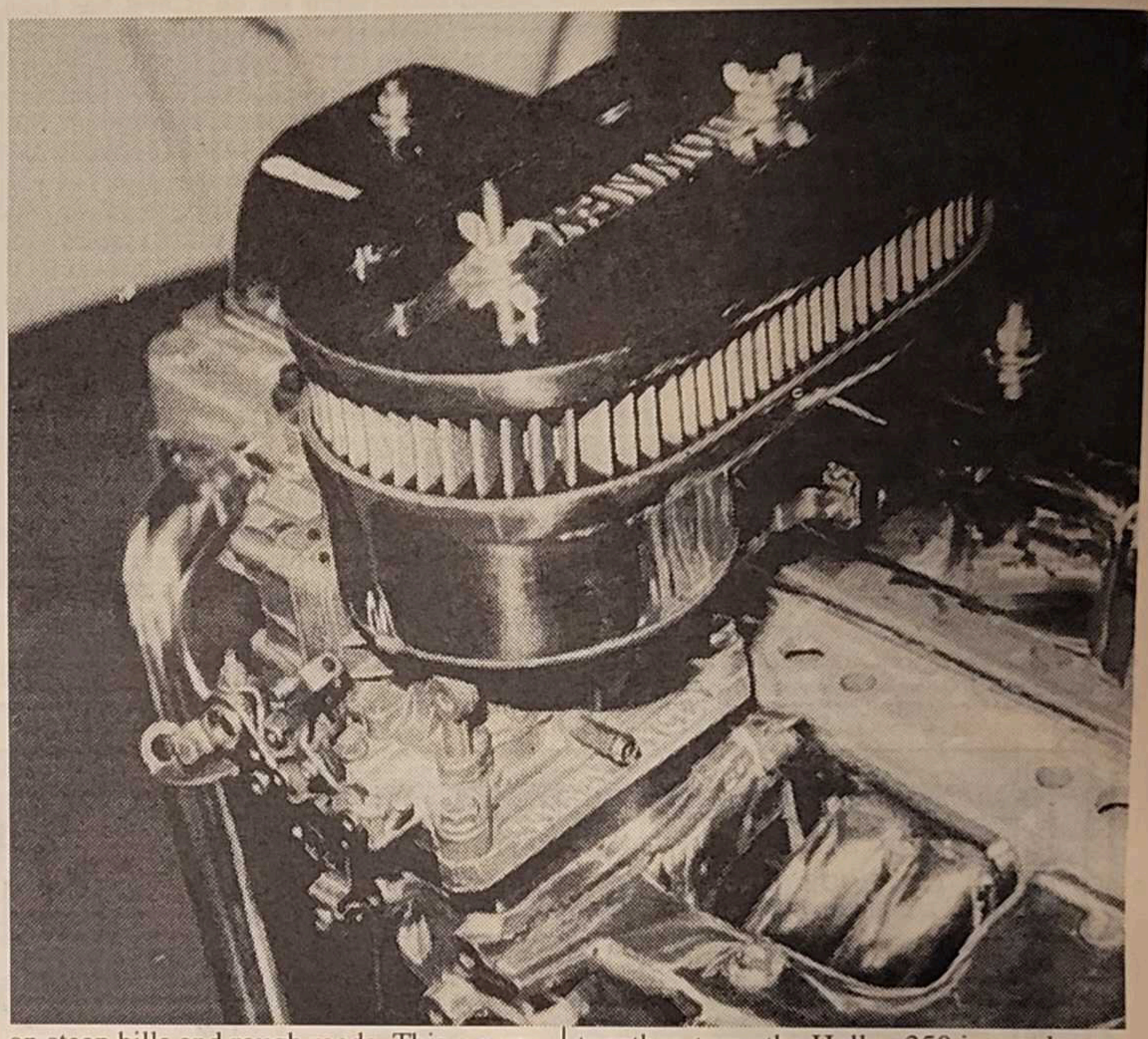
First, let's look at the out of the box benefits of a Holley 350. It is larger and flows more air (higher cfm) than a stock carburetor thus producing more horsepower and torque, it can be tuned readily to match performance desires, it's float bowl vent is within the air cleaner thus avoiding introduction of contamination and parts for Holley carburetors are readily available. Further, a complete conversion kit with everything you need is available from Downey Off-Road.



The downfalls of this carburetor are flooding on steep angles, float bowl slosh on rough roads, flooding or loading up at high altitude, difficult float bowl gasket replacement and fuel spillage when setting the float level. All of these problems are easily fixed with readily available parts.

Solutions to the Problems...

The most significant problem with the Holley carburetor is it's tendency to flood out

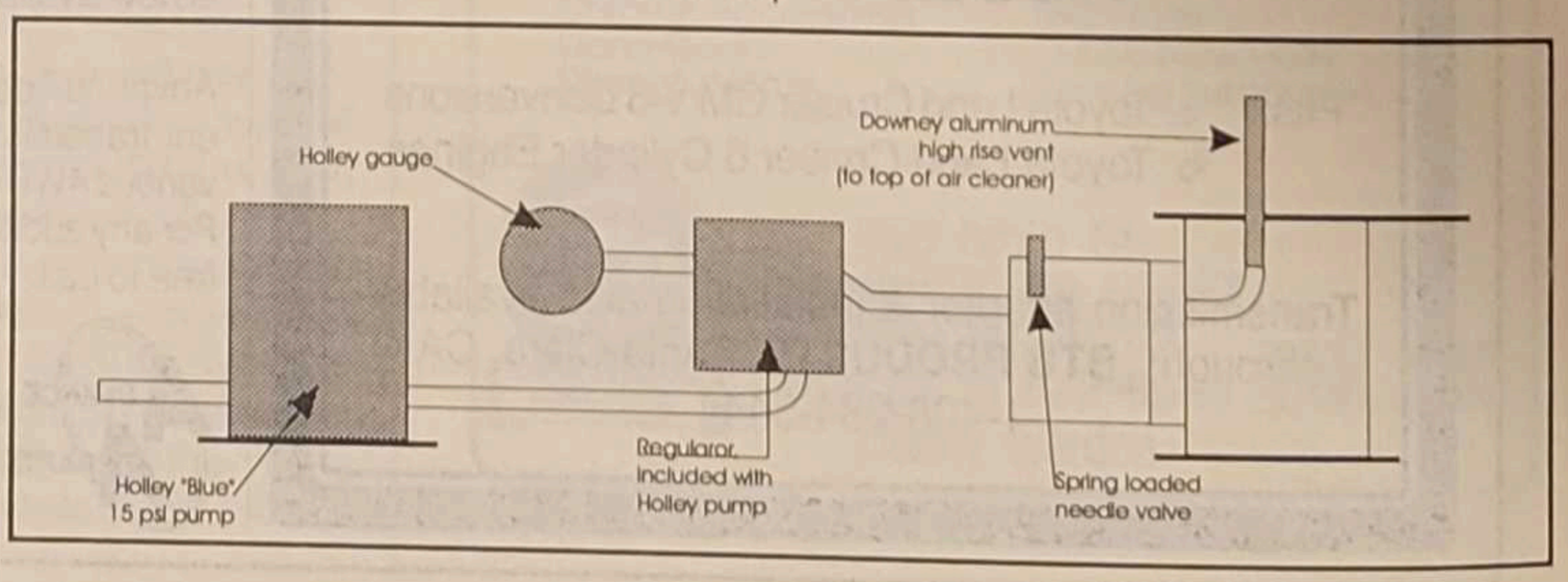


on steep hills and rough roads. This occurs for a number of reasons. One is raw fuel spilling out the vent tube into the throat of the carburetor. Another is the inability of the needle valve to stay closed when running on rough roads. Lastly, flooding can occur during hard acceleration (such as during high speed hill climbs) due to low fuel level in the float bowl. This is because the low fuel level opens the air vent passageway. When this is open during a steep hill climb, fuel is able to bounce out of the float bowl, through the passageway and directly down the carburetor throat.

An investigation of what the sand drag racers do turned up the perfect set up to eliminate these problems. The solution consists of a combination of parts that, when used together, turns the Holley 350 into a dynamite off-road carburetor. The parts required are:

- Sspring loaded needle valve, Holley P/N 6-513.
- Holley "Blue" 15 psi fuel pump, P/N 12-802. This includes a regulator to set the fuel pressure.
- Downey aluminum high rise vent tube.

The set up is shown in figure below. When installing the regulator and pressure gauge, locate them near to the carburetor so that it is convenient to perform fuel pressure adjustments along with other carburetor adjustments. Once all of the pieces are in place, the fuel pressure needs to be adjusted to 7 1/2 psi. At this pressure the



Tool Help

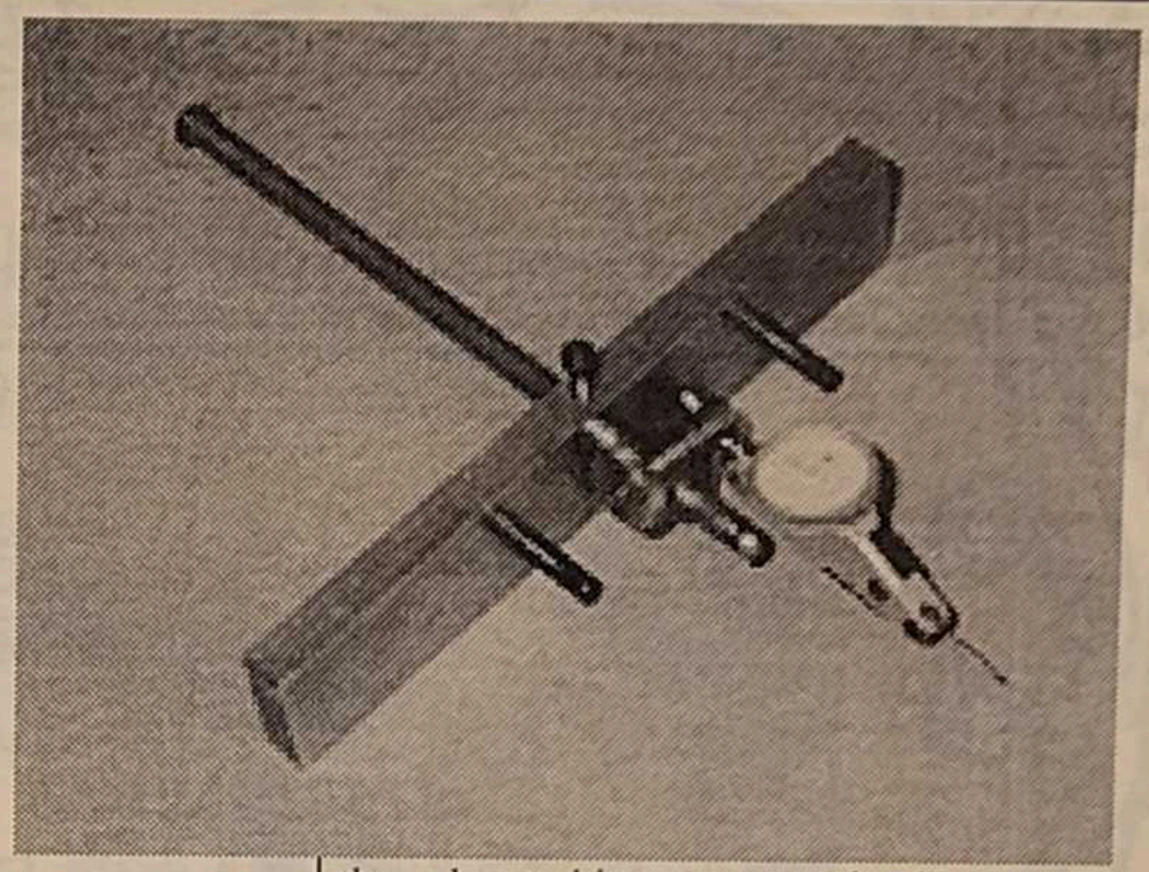
Making your own tool for knuckle alignment.

By John Normile

Are you going to tackle a front axle project? Maybe it's replacing the knuckle bearings. Or a more ambitious project such as converting an early land cruiser to disk brakes. If you do your homework and check your factory repair manual, you will find that you will need a special (read expensive) alignment tool.

This factory tool allows you to do two separate procedures. The first is to align the steering knuckle with the axle housing. Another part of the tool allows you to check the pre-load of the knuckle bearings. Pre-load is easy to work around. Use the steering arm and a "fish weight" type scale to measure pre-load.

Aligning the steering knuckles is more complex. The object of this operation is to have the center line of the inner axle perfectly aligned with the center line of the outer axle and spindle. The steering knuckle box moves up and down in relation to the inner axle, as you add and remove shims. The trick here is to know the relationship between the knuckle box and the axle, as shims are moved, add, or remove shims.



Most serious shade tree mechanics have a dial indicator. Using the indicator you can measure alignment. The trick is to mount the dial indicator so as to measure the relationship between the knuckle and axle housing. I found a way to do this by using the bore (hole) on the front of the knuckle box that locates the spindle. When this bore is aligned with the bore for the axle seal are concentric, the steering knuckle box is aligned.

A simple tool that is easy to make tool allows you to do this. I used a piece of steel that was 1/2" thick, 2" high, by 7 1/2" long is needed. Drill four holes and tap one of them, that's all you need. (See Sketch) Now press pins in the two of the holes. (See photo #1) Use the center hole for your indicator mount and tap the intersecting hole, and your our ready to go. (See photo #2)

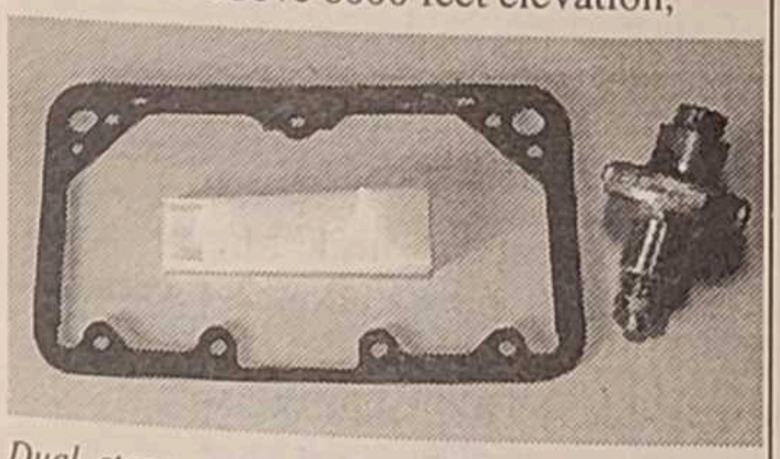
To use the indicator tool, hold it against the face of the knuckle box, with the pins held firmly against the inside of the bore. Now move the holder around in a circle, keeping the pins in contact with the inside diameter of the knuckle box bore. Adjust the indicator to touch the seal mounting diameter of the axle housing. Now you can measure the alignment, or concentricity of these bores.

When making rough measurements, only check top to bottom, trying to make these read the same. As you get close to zero indicator movement the side readings will also approach zero. You can hold the knuckle box ridged by using two pieces of threaded rod and four nuts. Remove the knuckle box stops and replace them with the threaded rod. Bend and adjust until the box is 90 degrees to the axle housing.

» Holley

float bowl will remain full where it would not with the 4 to 5 psi of a stock pump. The spring loaded needle valve will remain closed and not bounce while the high rise vent tube will prevent fuel from spilling out into the carburetor throat. With this set up the performance of the Holley carburetor will be impressive.

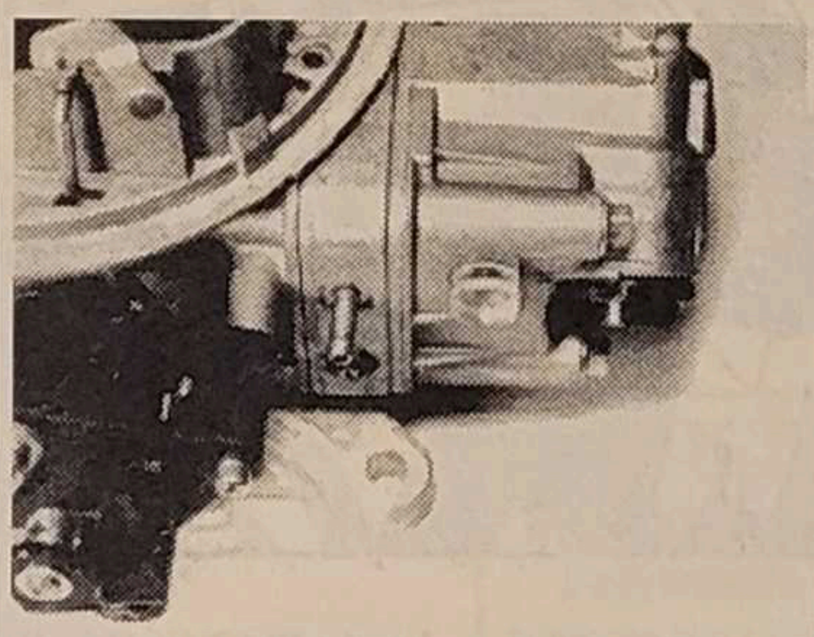
Now that you have the ultimate hill climbing, rough road Holley equipped Land Cruiser but, you say, 'I live up above where the birds fly. How do I get decent high altitude performance?' That's easy! Just install a dual stage high altitude power valve (Downey P/N 21301-F). The installation of this power valve provides excellent performance above 6000 feet elevation,



Dual stage power valve, right, rubber gasket and float bowl baffle.

with only a slight reduction of sea level performance. To further assist with float bowl disassembly and reassembly, a reusable rubber gasket is available. Another trick item to use is the new acrylic inspection window for avoiding spillage while setting the float level.

Another new addition to the performance parts available for the Holley 350 comes from Moroso. They have a float bowl extender which adds 40% to the bowl capac-



View of clear plastic float level inspection window on side of float bowl.

ity. The extender fits between the bowl and the carburetor body and is filled with foam rubber to eliminate sloshing. In addition they offer jet extensions to enable the fuel to be pulled from the main portion of the float bowl.

With all of the specialized parts that have been developed for off-road use of the Holley 350, it's clear that there is a great deal of technical support for this product. When set up properly it is a significant enhancement to any six cylinder Land Cruiser. Just remember to check the local smog regulations to see if it is legal to run an aftermarket carburetor. Unfortunately it is definitely not legal in smog central California.

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