

# Solving A Problem

## You Might Not Know You Have, Yet



So here is Brian's Zipper in our own Tech Center as it's about to be hooked up with a new communication link between the engine and transmission. During this process we'll have a nice chance to do some much needed maintenance, like changing the trans filter and pan gasket. We highly recommend grabbing the filters and gasket when you pick up the necessary transmission fluid you'll need for this install. It's not everyday you get to, or want to for that matter, drop the pan on your tranny. Don't forget to make a perimeter sweep to inspect the tranny lines, yoke seal, and anything else under your ride that might need attention. Thankfully we have a lift to do an easy inspection, but the lift shouldn't be an excuse for not checking things out once in a while. Keep your Bowtie Overdrive's instruction book close at hand as it does a great job of explaining things as you go.

## GM's overdrive trannys are superb, so why are they getting such a bad rap?

BY JASON WALKER

You have undoubtedly read Ron Ceridono's in-depth report titled, "It All Happens Automatically," discussing the ins and outs of Chevy's 700-R4 and 200-4R overdrive transmissions in *STREET RODDER'S* Dec. '03 issue. Ron spoke in length to help us understand the need for the correct TV cable hookup on GM overdrive transmissions. If you haven't read it yet we will wait for you to catch up. Go ahead, we'll wait. Did you learn anything about what's happening inside your overdrive tranny? We did, which brings us to our esteemed Editor Brian Bren-




Brian Alva, our Tech Center mechanic, started things off with draining and dropping the tranny pan. Locate the valvebody and familiarize yourself with how the cable and throttle lever (the lever that pushes directly onto the plunger inside the valvebody) operate, and the position they are installed.



**Remove the two bolts from the throttle lever mechanism and disconnect the cable. Set this stuff aside for now.**



**Now you can see the TV plunger poking out the end of the TV bushing. To remove the TV plunger, grab a set of pliers to pull this pin out. The plunger will then slide out, exposing the internal TV spring. The TV plunger is full of grooves that act as the valleys that fill and release with tranny fluid, in turn telling the tranny exactly how to react depending on the position of your foot when smashing that accelerator pedal. This is the critical information that a conventional kick-down cable simply cannot relay properly.**

nan. It seems a while back Brian switched over to a Demon four-barrel carburetor on his Zipper lakes modified car. Before we get to far into this, the carburetor wasn't the problem. The problem was felt on the road when changing the location of the existing kick-down cable. There was enough difference in the cable's location to sort of make an existing problem far more prevalent under normal light acceleration. Since Brian's car runs a 700-R4 transmission, we started looking into what would cause the car to suddenly start shifting poorly. We know from Ron's piece on these trannys that without the proper TV cable linkage connection point on the carburetor, Brian's car, or anyone else's car in the same boat, would never shift properly and most likely would see a premature rebuild. That hurts when you start pricing 700-R4 rebuilds. After a few well placed phone calls to Bowtie Overdrives of Hesperia, California, we were schooled in the do's and don'ts of overdrive trannys. The problems Brian faced while driving were soft shifts and a tendency to shift into high gear way too soon. Basically, the trans was not allowed to receive the correct information that would have in turn pushed the TV plunger to the correct spot to allow the trans to create more fluid pressure. This is bad, very bad. Thankfully, Steve Holmes, owner of Bowtie Overdrives, knew exactly what we needed to do, and he just so happened to have a prototype kit specifically designed for the Demon-style carb. You see, each kit is designed for a specific length of movement that may change drastically between different brands of performance carburetors. Once Steve gave us the low-down on why using the correct TV cable kit is so important, we were off to find out what it takes to install one. To be honest with you, it's really basic. We aren't transmission experts over here, but with this kit and the clear directions explaining it, we would venture to say anyone with mechanical ability can install this TV kit, and should too. So check it out and don't let this problem go too long. Even if you think your tranny is performing beautifully, without the correct TV cable it just simply is not. 



**Pull the plunger out and remove the factory TV spring. Replace this spring with the new one supplied in the Bowtie Overdrive's kit. Bowtie Overdrives has spent an enormous amount of time researching the best possible spring length for your application. This is another critical part in the process of creating the proper communication between your engine and tranny.**



**Remove the existing kick-down cable and slide the new TV cable back in the same route. Hook up the throttle lever mechanism with the new TV cable. Bolt the throttle lever back into place, install a new filter, bolt the pan back on, and head topside.**



**The kit includes the correct carburetor base plate and gaskets for most popular performance carbs. Brian's car uses a Demon 650 cfm, but these steps are pretty much the same, no matter what carburetor your running.**



Remove the accelerator cable, fuel line, choke wire, and the four carb bolts.



Since someone didn't want to pull the fuel line off, we employed an extra set of hands to help out with the quick exchange. Make sure there is no residual gasket material on either the carb base or manifold before reinstalling the carburetor. It takes a gasket on each side of the TV cable carburetor plate. Wow, that's a mouthfull.

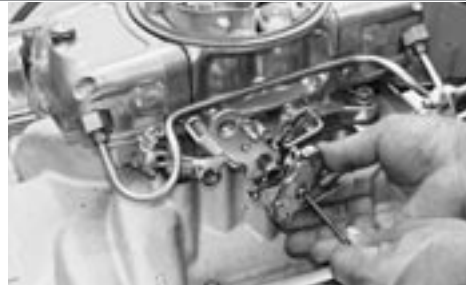


Actually, we had Barry White's Street Rod Repair's most famous fabricator Chad Vogele step in to reposition the throttle cable flange to the new TV cable base plate. This just happened to be one of those times a little fabrication work lined up the accelerator cable to work. When you start changing things on your car expect these little speed bumps, because they do happen and have to be dealt with.

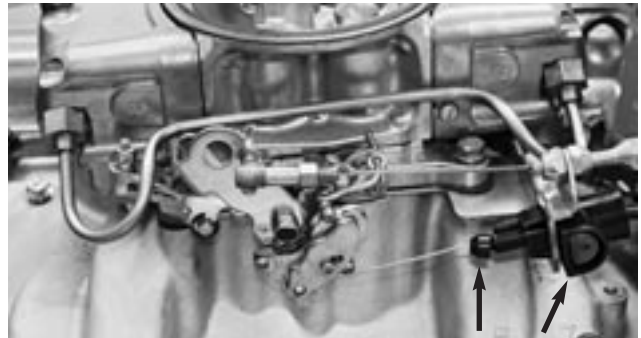


Before installing either of the cables on the Demon carb, slide the cam-adjuster onto the carburetor's throttle arm. The adjuster will give special fine-tuning for the kind of driving you prefer. Adjusting the cam will either increase shift pressure and shift points, or ease the shift pressure

down, all within the specific limits that were designed into the transmission. Now we can install the Lokar accelerator cable.



Next, install the TV cable and the cam adjuster cap. The cap will hold the cable and adjustment screw in place. Reinstall the accelerator cable as well.



Now we start the actual set-up procedure.

Before the first step, you must determine if you have full throttle in your pedal. In other words, when the accelerator pedal is fully depressed make sure the accelerator arm on the carburetor is in its furthest wide-open position. If the arm on the carburetor moves further after the pedal is completely mashed,



adjust the slack out of the accelerator cable before moving on. If the accelerator cable is adjusted perfectly, start the setup by pushing the "D"-shaped button while pushing the cable slider (the round piece of plastic attached to the cable) back towards the transmission until it stops as far into the cable housing as it will go. Release the "D" button to hold the cable in this pre-set position.



The next step is to manually rotate the carburetor linkage to W.O.T. (wide open throttle). However, as you attempt to rotate the carb linkage the TV cable will add drag to this action. You must force the throttle open all the way, causing the TV cable slider mechanism to ratchet out to its correct set position. You will hear the ratcheting sound to let you know it has been set. This establishes the correct wide-open throttle relationship between three key components in the TV system, and completes the set-up procedure. This set position will automatically establish the correct working relationship between the cable and transmission.



Here's where the 7 feet of hose and the 0-300 psi gauge come into play. Like we explained earlier, the 700-R4 and 200-4R trannys are impossible to dial-in without the use of a pressure gauge.



There is a pressure port on the driver's side of the tranny where the line and gauge needs to be hooked up to.



With 7 or so feet of line you should have plenty of length to route the pressure gauge so it can be seen in the driver's seat.



Now is the time to fill the tranns up with fluid. As it is impossible to pressure check a dry trans, this would be right up there with one of those really important steps.



Bowtie Overdrives has included a separate page of instruction and for listing the pressures at different times and rpms. This is so you, as the installer, can call Bowtie Overdrives with your pressure readings to find out if the TV cable is set properly, and to tell if there may be other problems with the trans. Remember, the fluid pressure reading from inside a 700-R4 and 200-4R will spell out a few different problems, if any. Letting Bowtie Overdrives in on every detail at this point will insure a proper conclusion. You can also check to be sure the TV cable length has been set properly by pulling on the cable slightly while the engine is running. When properly set the pressure will jump when the cable is pulled, but not change at all when the cable is disconnected from the carb. Try these easy steps to help rest any concerns with the correct installation of this kit.

#### SOURCES

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