

**Article No.:** TASC-TIP-03-2009

**Author:** Dan Tucker

**Total Pages:** 2

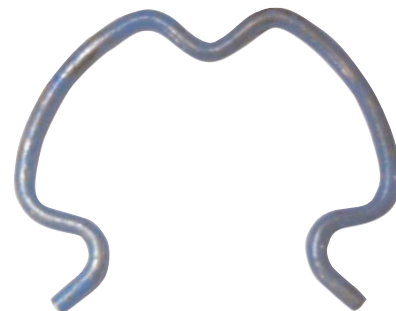
## Transmission versus Cooler Line

Now isn't this an odd title for an article? Is the title insinuating that the transmission and the cooler line are competing with one another? I thought transmissions and cooler lines worked together in harmony. Well, I know at our shop, we have certain cooler lines that have drawn special attention in the last couple of years. We have been 'clipped' with some unexpected comebacks.

Here is a real life experience from our shop that started about 3 years ago. A 2000 Chevrolet pickup came in with no reverse, no 2nd, and no 4th. While I feel for the customer, I have to say this is a 'sweet' complaint and we are eager to fix this 'gravy job'. The vehicle has better than 130,000 miles on it so the customer chooses an overhaul. We take out the transmission, do the standard overhaul, flush the cooler, and back in the vehicle it goes. Before we let the truck down it gets a double check to make sure everything looks as if we had never worked on it. We fill it up with fluid, test drive it a couple of times and it is ready to deliver to the customer. The customer picks up the vehicle and it works great.....for about a year. Then we get that dreaded phone call that goes something like this: "You know the truck you just overhauled for me? Well, it just started slipping and quit all at once". We send a wrecker after it. Once it gets to the shop we raise the hood and find out that the cooler line at the radiator has been on the move. That's right; the top cooler line has decided to move rearward approximately 6 inches. The cause: the tiny metal cooler line clip (*see Figure 1*) gets worn or breaks (*see Figure 2*) and allows the cooler line to pop out of the radiator.

We breathe a sigh of relief, convinced we are looking at only repairing the cooler line problem, and down the road the transmission will go. I wish this was the case, but most of the time in a 4L60E, when it comes to cooler line verses transmission, the cooler line kills the transmission, specifically the 3-4 clutches. What seems to happen is: if the line pops out and the customer is traveling faster than 55 mph, before they notice the massive fluid

leak, they feel the transmission falling out of gear. It only takes a few revs of the engine to verify the transmission is slipping and in doing so, it wipes out the 3-4 clutch plates. In this particular case, we replaced the broken cooler line clip and on the test drive the truck has no 3rd or 4th. This is not good. If we look at this from the customers' point of view, they figure it is our fault because we just rebuilt the transmission and they paid us a lot of money. If you look at it from our point of view, we worked on the transmission and didn't touch the cooler lines at the radiator. Now look at what has happened. The transmission vs. cooler line war has turned into the worst possible situation. If the shop doesn't warranty the transmission, it will be "shop vs. customer". Because this was the first time we ran



**Figure 1**

*OEM cooler line retaining clip*



**Figure 2**

*The cooler line popped out, due to this broken clip. The truck had 130,000 miles*

## sonnax®

Automatic Drive P.O. Box 440  
Bellows Falls, VT 05101-0440 USA  
800-843-2600 • fax: 802-463-4059  
email: [info@sonnax.com](mailto:info@sonnax.com) •  
[www.sonnax.com](http://www.sonnax.com)

©2009 Sonnax Industries, Inc.

into this we smiled, explained the situation to the customer and made the repair for free. Of course, this leaves the customer happy, and the shop in the red.

During the repair, we installed 2 new clips at the radiator top and bottom. We also took a plastic tie and secured the lines at the radiator to stop some of the sloppy movement that we feel is responsible for the wear on the tiny clips. After this customer is gone, it's not a week later until we have another cooler line pop out of a different vehicle. This time it was the bottom line on a 2001 Chevrolet truck with a little over 100,000 miles on it. That job made us change our repair process. From that day on, we made it a part of every overhaul to install new clips at the radiator and secure the lines. Over the next year, more than ten units we had rebuilt before we started replacing the clips, lost lines at the radiator. More than 75% of the time, the line popping out equaled 3-4 clutches burnt. On a few, the forward clutches were burnt, but usually it was the 3-4. Of course, all the clutch damage is from the sudden loss of fluid.

In 2008 we only had one cooler line to pop out and it was determined that we installed a new clip on the bottom line but failed to replace the one on the top.

I have written this article to warn other poor old transmission shops like ours that there is a spider's web spun out there, waiting to catch you. While we are flying around minding our own business doing the best job we can fixing transmissions, the cooler line booby-trap is lurking, waiting to catch us in its web. I don't think there will be any bailout money to help us. The only way I

see to avoid this trap is to fix the problem before it becomes a problem. The vehicles we have seen with this concern are the 1999-2006 body style Chevrolet and GMC full size pickups. In 2007, GM put brackets on the radiator shroud which secure the cooler lines. We feel this will reduce or eliminate the problem. As stated earlier, we feel the loose-floppy line is what causes the clip to wear so quickly.

I know some of you out there have not run into this problem yet, so you may be reluctant to start replacing the clips on these vehicles. I challenge you to start taking the clips off at the radiator and inspecting them, especially on higher mileage vehicles. These tiny clips only contact the cooler line in three small areas (see Figure 3). Once the clip is worn through in one of the three contact areas, it breaks and out goes the line. We have seen them badly worn at 65,000 miles (see Figure 4).

Why take a chance? Replace them and charge the customer for it. What is that old saying? "While the customer has his wallet out, make sure you get the money you deserve to fix their vehicle, because once the wallet goes into their pocket, it is nearly impossible to get them to pull it back out later."

---

*Dan Tucker is owner of Tucker's Transmission in Pine Bluff, Arkansas and a member of the TASC Force (Technical Automotive Specialties Committee), a group of recognized industry technical specialists, transmission rebuilders and Sonnax Industries Inc. technicians.*



**Figure 3**

*Inside view of the GM cooler line fitting. You can see the 3 small contact areas.*



**Figure 4**

*This clip has 65,000 miles on it. Note the wear on the 3 contact areas.*