

A New Key for the Honda P0740 After-Rebuild Blues



by Bill Brayton
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Back in March, 2008, I wrote about Honda transmissions and the P0740 after-rebuild blues. That article specifically talked about converter clutch problems on Honda 4-speed units.

It's been a few years since then; today we're working on Honda 5-speed units. But many shops are still singing the P0740 after-rebuild blues. Over the last few years we've discovered a lot about how to keep these troublesome units on the road.

We know that the items we covered back in March of '08 still work to reduce the P0740 after-rebuild blues. But beyond that we've added a few measures to help keep these units out. They include:

- Replacing the check valve spring
- Installing an auxiliary ATF oil cooler
- Modifying the regulator valve body

Honda hasn't changed the way they apply the TCC in recent years, so there's no reason to revisit torque converter clutch apply operation. I've included a schematic to show the minor differences between the 4-speed and 5-speed units.

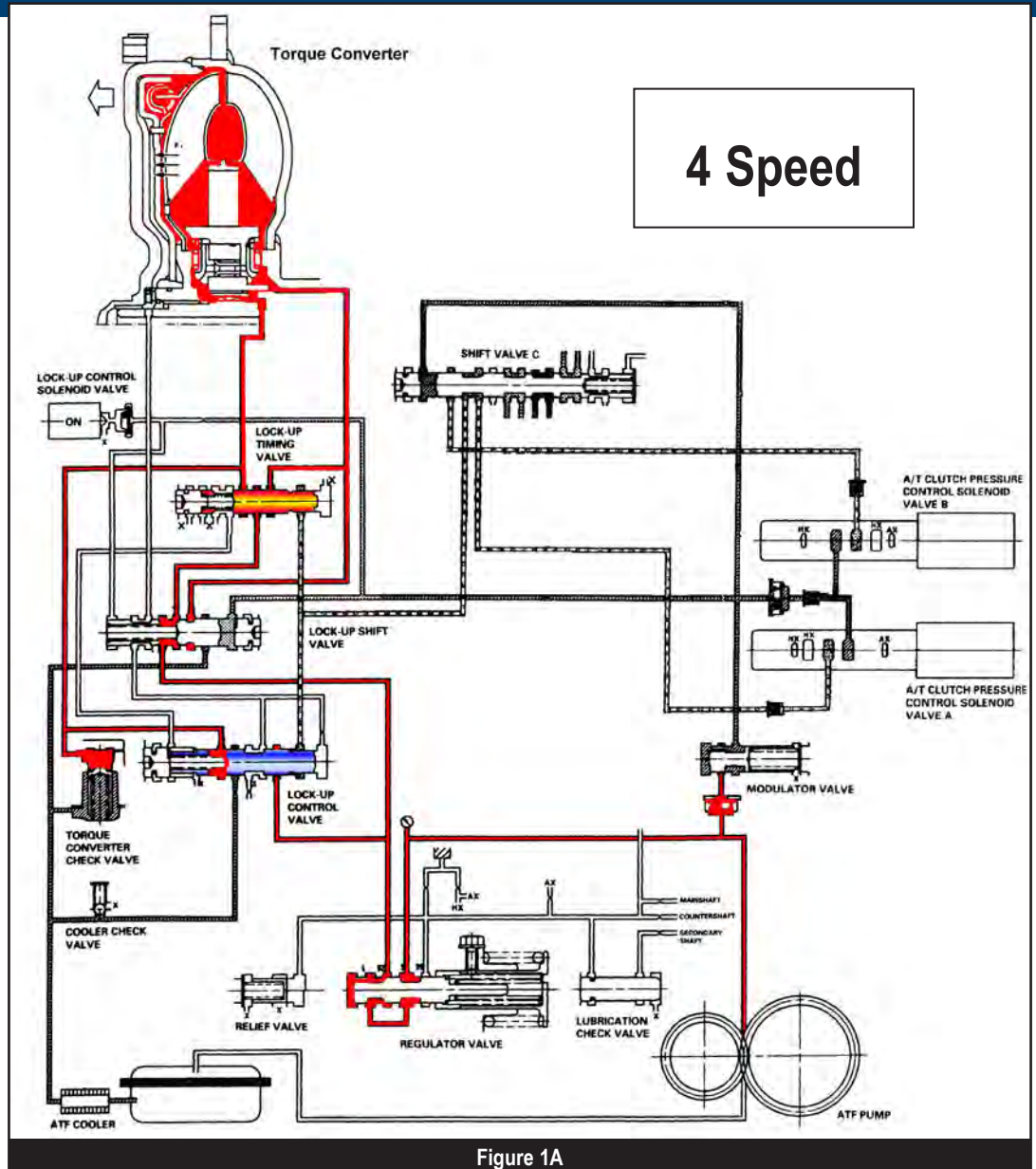


Figure 1A

The main difference between the 4-speed and 5-speed units is that the 5-speed uses a dedicated Clutch Pressure Control (CPC) solenoid to control lockup operation. 4-speed units

used one of the two CPC solenoids for lockup operation, depending on which gear the converter clutch applies (figures 1A and 1B, *figure 1B is on page 6*).



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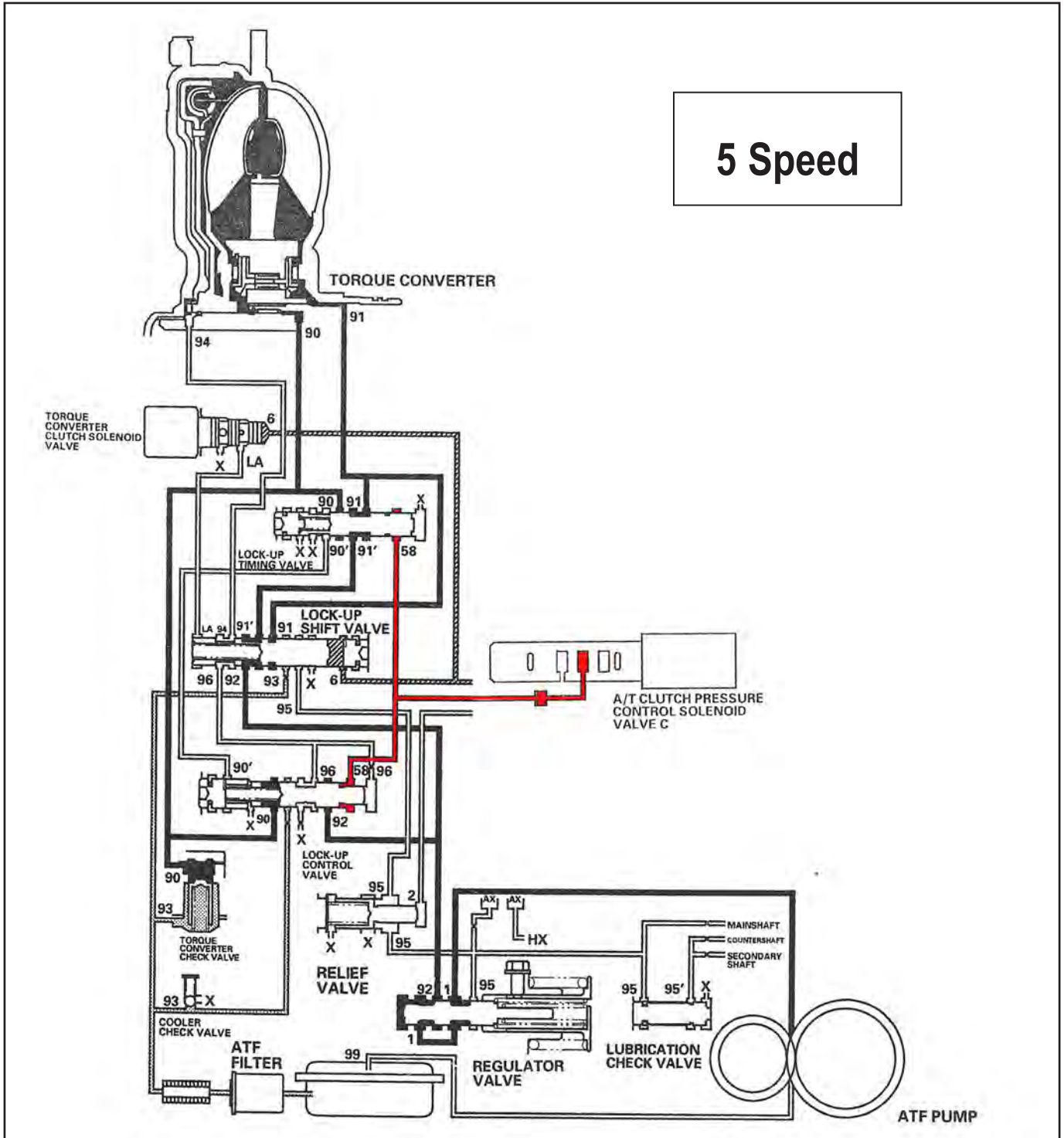


Figure 1B

A Simple Modification Makes a Big Difference

Here's a simple modification you can make to both the 4- and the 5-speed units to improve lockup feel and increase converter charge when line pressure is high.

Drill a 0.030" to 0.045" hole in the regulator body at the location shown to connect the line pressure passage to the converter charge passage (figure 2).

Drilling this hole increases converter charge and lengthens TCC life. Here's why:

When the PR valve is at maximum line position, converter charge is cut off. Drilling the regulator body provides constant flow to converter charge, even at maximum line pressure, when converter charge would normally have been cut off. This provides apply pressure for the converter clutch when

converter feed is badly needed, such as when you're traveling up a long grade.

The Check Valve

The torque converter check valve plays an important role in the converter charge circuit. This valve helps maintain the converter charge pressure while the converter is locked up (figure 3). If the spring is weak or collapsed, the converter charge could drop off and

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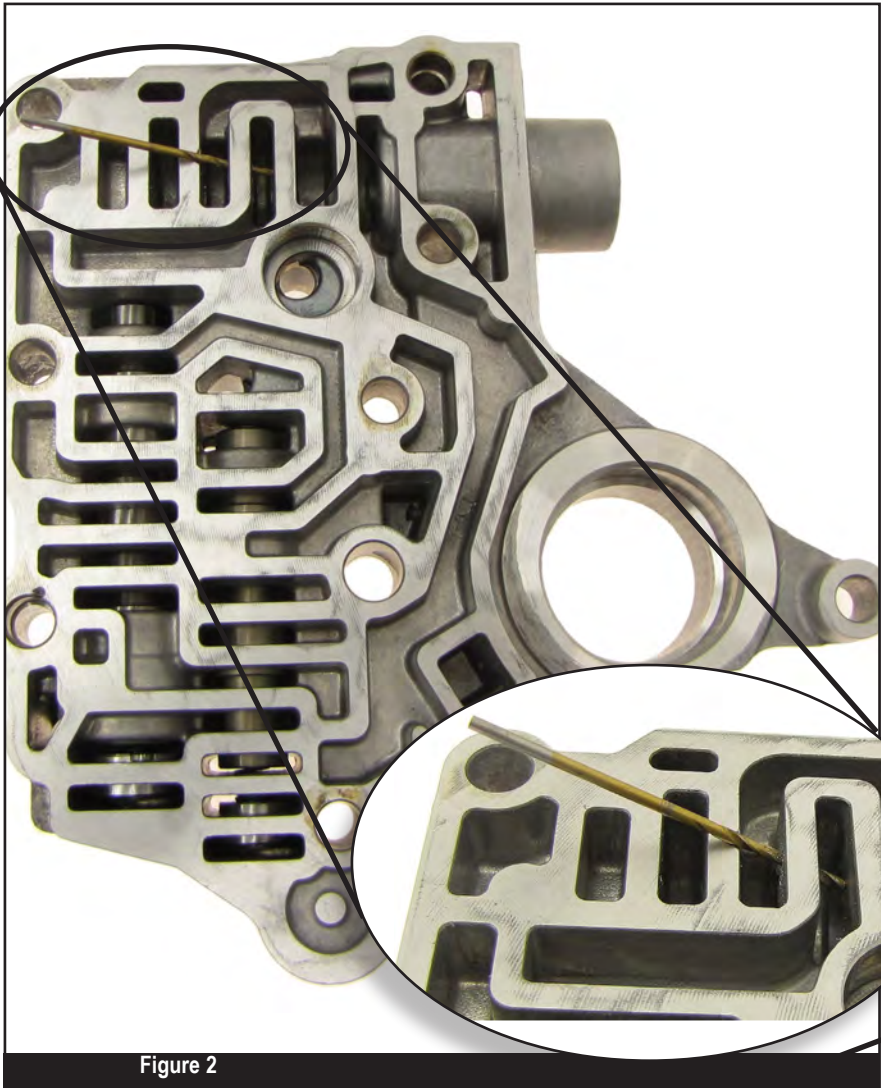


Figure 2

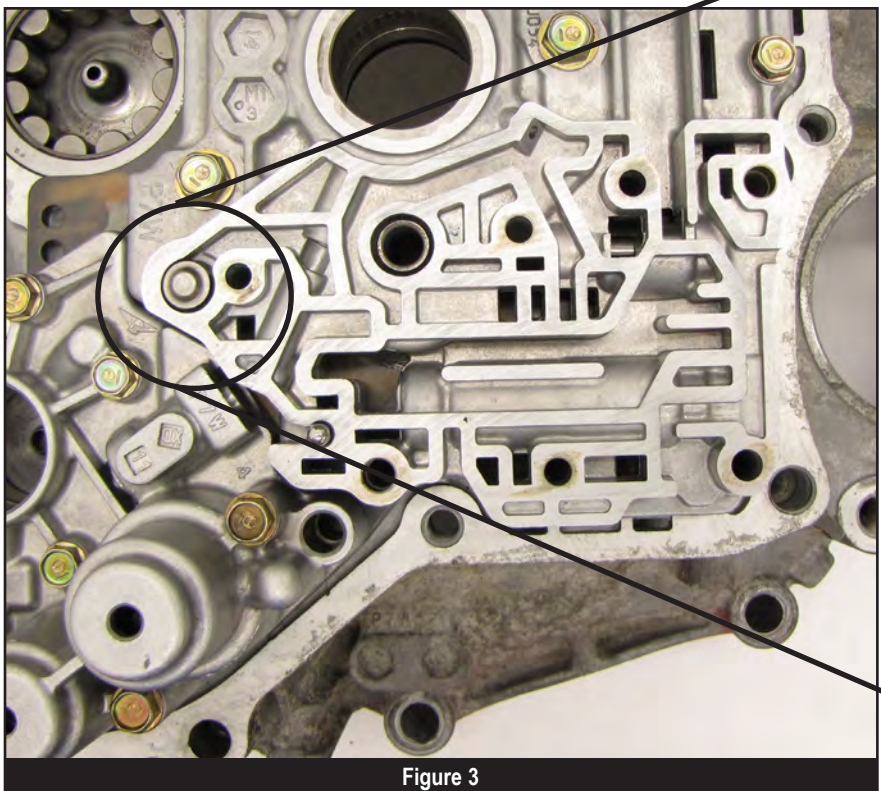


Figure 3

cause the converter clutch to slip, leading to TCC failure.

The stock spring measures roughly 1.386" long x 0.333" diameter x 0.046" wire size. Always check the height of this spring during a rebuild. If the spring doesn't measure up, replace it; there are springs available from the aftermarket.

The Cooler Install

The major benefits gained from installing an auxiliary ATF cooler include:

- Lower ATF temperatures providing longer transmission life.
- Reduced heat load placed on the engine's cooling system helps prevent engine overheating.
- Separating the ATF cooler from cooling system eliminates the possibility of cross contamination (coolant mixing with ATF).

Typical ATF Cooler Installation

We're going to look at the installation procedure for a Honda Odyssey. This procedure is fairly typical, although there will be some



Figure 3: closeup

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Fastener Locations

▷ : Clip, 11

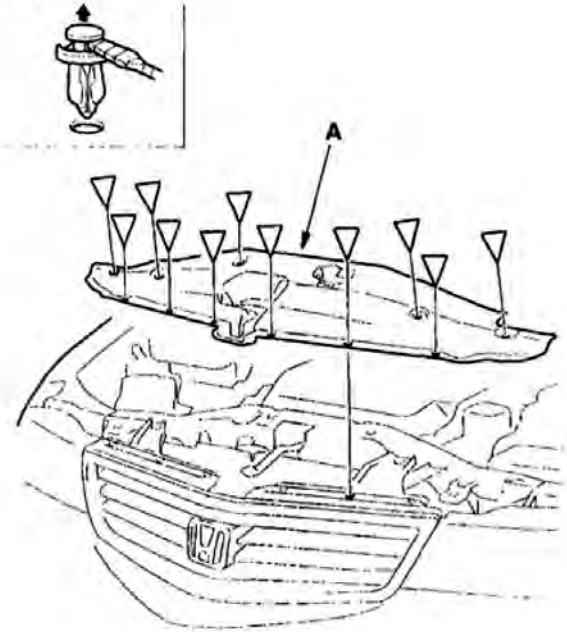


Figure 4

Fastener Locations

▷ : Bolt, 2

F ▷ : Screw, 2

C ▷ : Clip, 4

6 x 1.0 mm
9.8 N-m
(1.0 kgf-m,
7.2 lbf-ft)

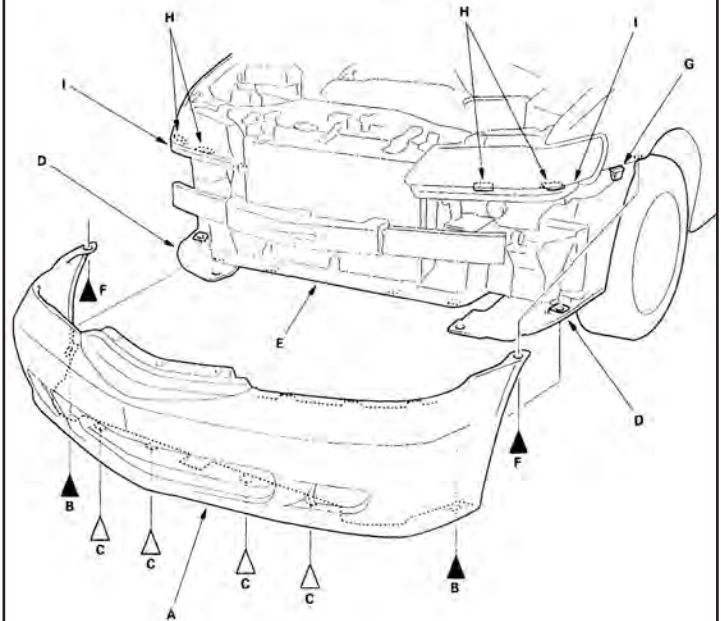


Figure 5

minor differences for other vehicles.

We're going to completely bypass the factory cooler and eliminate it from the circuit. This will turn all of the cooling over to the external cooler.

It's best to use a cooler that's rated at or near 22,000 GVW and 20,000 BTU. It's a lot bigger than the factory recommendation, but this size cooler is large enough to provide more than adequate cooling under all circumstances.

Install the cooler right in front of the radiator, where it's exposed to plenty of clean air flow.

Removing the front bumper and plastic bulkhead cover isn't much of an issue. After removing the bulkhead cover (figure 4), removing the bumper is a matter of four screws and a few more body clips (figure 5).

The front of any vehicle takes so much punishment from the road that a solid cooler installation is a must. The bottom of this cooler has been secured with heavy L-brackets (figure 6). A second side strap provides additional support (figure 7).

Always use new, high quality hose clamps on any cooler installation; this is no place to skimp on quality. On this installation we used an insulated cable bracket to route the cooler hoses around a bulkhead (figure 8). This goes a long way toward preventing the hoses from chafing caused by vibration.

Once cooler installation is complete and the car

The front of any vehicle takes so much punishment from the road that a solid cooler installation is a must.

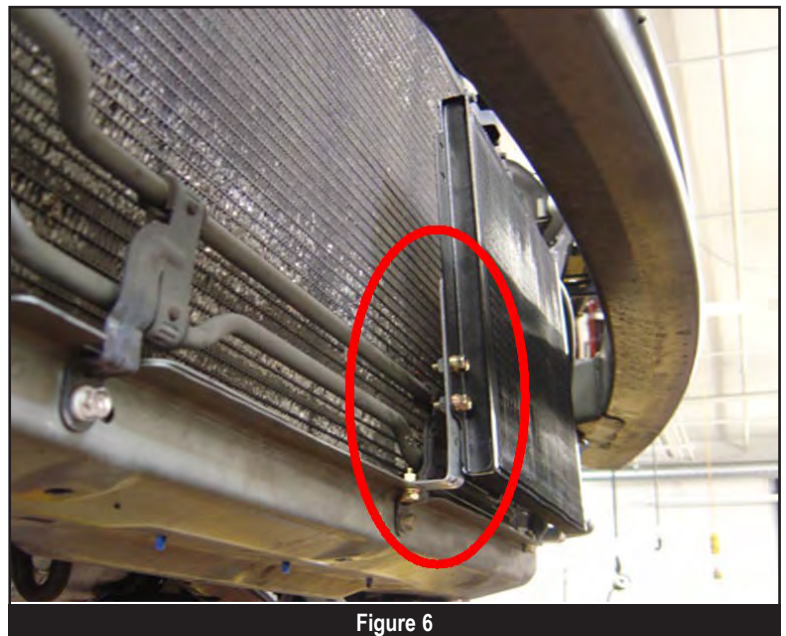


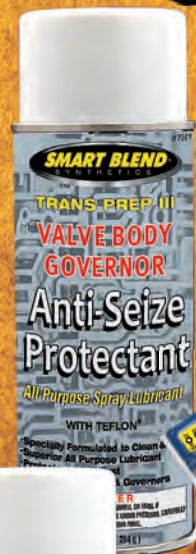
Figure 6

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is buttoned back up, always check the ATF level. The new cooler will take up some of the ATF volume and you don't want your new transmission to go out low on fluid.

This installation may seem complicated, but anything worth doing is worth doing well. This type of installation will give you piece of mind that you've done all you could to increase the life of your rebuild.

Don't Forget the Details

The expression goes that "the devil's in the details." Some days you might think it was written specifically to describe the Honda converter clutch.

As I like to remind people: "Remove every valve from every bore, on every Honda, every time." Sure, it's going to add some time to your rebuilds. But it's also going to cut down those comebacks... and that's well worth a little extra time.

And don't stop there: Make sure the end plugs are snug in the valve body bores. Always use a quality torque converter. Make the modifications to the regulator body. Treat these 5-speed Hondas with TLC and use quality parts, and that may well be the last time you find yourself playing the P0740 after-rebuild blues.

Getting those transmissions out on the road and keeping them out... I can't think of a better way to begin having *Fun With Transmissions*.

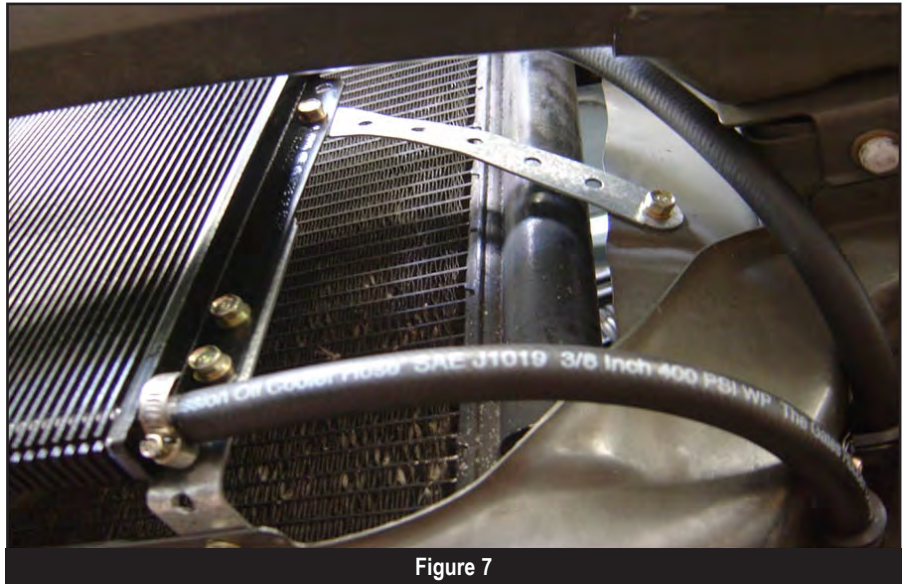


Figure 7

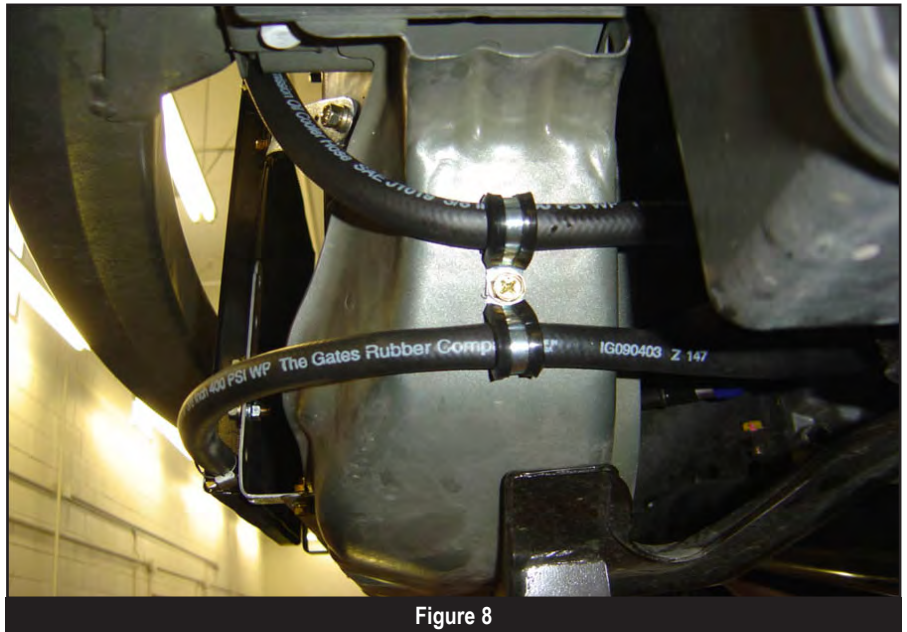


Figure 8

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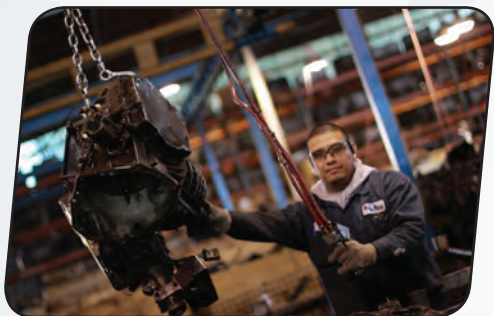
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