

Sonnax Technical Bulletin

ACCUMULATING COST-EFFECTIVE FIXES

If you're a transmission rebuilder, you know that many shift problems can be traced back to a malfunctioning accumulator, whether it's a Chrysler, a Ford or a GM you're tearing apart.

Problems in the accumulator circuit commonly lead to customer complaints of 1-2 bang, 2-3 flare, slide bumps and downshift clunk. The first clue you're likely to have is evidence of burned bands and clutches once you begin your inspection.

First, a few basics. Understanding the various components in an accumulator circuit may help you focus on some key places to look for causes of shift complaints.

An accumulator essentially acts as a cushion for the shift by consuming

a portion of the oil that would otherwise go to the apply device. It's similar to the oil reservoir in a shock absorber: a shock absorber dampens the movement of a vehicle's suspension for a smoother ride, while an accumulator smoothes out the bumps during clutch or band apply.

Here's how it works. Apply oil is sent to the clutch and accumulator simultaneously. The initial phase is a rapid build-up of pressure in the circuit as the clutch and accumulator fill, the clutch piston begins to stroke and the clutch pack clearance is removed. Next, the accumulator piston begins stroking against spring force and accumulator (throttle) oil pressure, allowing the clutch apply pressure to build up in a more gradual manner. The final phase is when the accumulator piston stops

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PRODUCT SPOTLIGHT

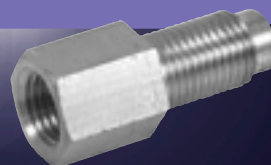
Fittings designed with NPT pipe threads offer enhanced sealing due to the taper along the threaded portion. But a taper is also a wedge, and overtightening the cooler line fitting stresses and often cracks the case, resulting in a leak that might be severe enough to force replacement of the case.

The Sonnax Cooler Line Adaptor Kit 22000-01K allows you to salvage the case without removing the transmission, by allowing you to re-tap the case

CHRYSLER RWD WITH 1/4" PIPE FITTINGS ONLY PART NO. 22000-01K

FIX THESE COMMON COMPLAINTS

- Oil leaks due to cracked case
- Loss of case



and install a new fitting. The kit has a 1/4" N.P.S.F. (straight fuel threads) fitting and a female adaptation 1/4" N.P.T. for the OE cooler line fitting. The fitting seals to the case with the leading edge. The kit also includes a special tap for the case threads.

This kit eliminates oil leaks and saves you hundreds on your rebuild.

22000-01K
Cooler Line Adapter Kit

moving and the apply circuit pressure jumps to line pressure.

The design intent is for the shift to be completed during the stroking of the accumulator piston. That means that the piston is stroking under considerable pressure every time the device is applied, often wearing out both itself and the case bore in which it lives in the process. That wear leads to a litany of complaints. If pressure builds to apply too fast, you get end bumps or bangs. If pressure builds too slowly, you end up with long slide shifts or flares. There has to be perfect timing between the action of the piston and the clutch.

Now, there's always been a fix – as long as money (and your time) is no object. You pull the old case and junk it, and replace it with a new one. Or you buy a new valve body or accumulator body. And then you present your customer with the bill and hope they're smiling when they drive away from your shop.

There's a cheaper, less labor-intensive solution from Sonnax. We offer products that allow you to salvage those expensive cases.

For Chrysler units (A727, 42/46/47RH/RE and 904), there's **22841-01K**, an intermediate accumulator repair kit that will salvage damaged cases. The kit comes with an undersized accumulator piston as

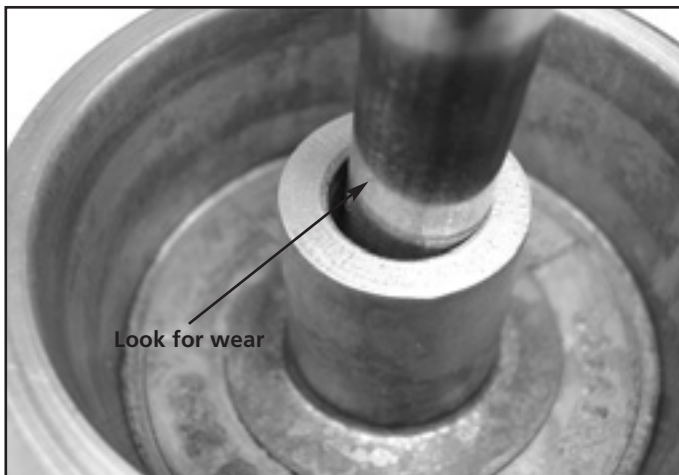
well as two sleeves and seals to repair both the small- and large-diameter pistons. This is a drop-in solution that requires no machining.

Our accumulator bore sleeve kits for Ford AXOD & E and AX4S applications repair bores that have been scored by the constant oscillation of the piston. Part numbers **96511K**, **96512K** and **96513K** each contains a sleeve, piston and Viton® o-ring to repair the N-D, 1-2 and 3-4 locations. Sonnax also offers master kit **965123K**, which includes one of each of the kits referenced above.

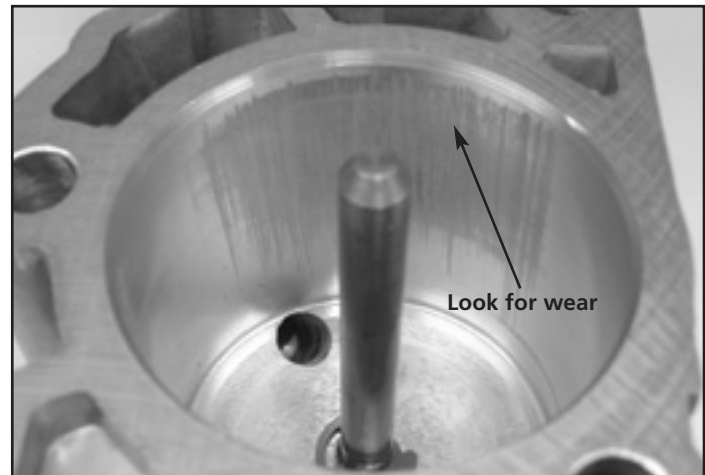
We also have a fix for the Ford CD4E, an o-ringed accumulator piston and spring kit that will allow you to cure harsh engagements or soft or harsh shifts caused by worn or out-of-round accumulator bores or sticking pistons. Kit numbers **73840-24**, **73840-LR** and **73840-FWD** each includes an accumulator piston, two Viton® o-rings and modified springs to fit the smaller piston pocket, and are designed for the 2-4 clutch, low/reverse and forward locations.

For GM 4L80-E applications, Sonnax offers a 4th accumulator bore and pinless accumulator piston to salvage a galled accumulator body. Kit number **34805-01K** includes a press-in replacement sleeve and a pinless accumulator piston with a Teflon® guide ring to support the piston in the bore.

Worn Accumulator Piston Pin Bore



Worn Accumulator Bore



We welcome your feedback!

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