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**20 Steps to Successful  
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**AUGUST 2009**

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# GEARS

FOR THE TRANSMISSION REBUILDING INDUSTRY

AUGUST 2009

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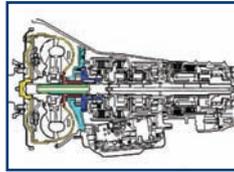


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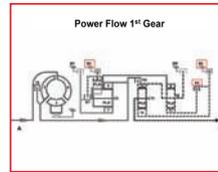
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**FROM THE CEO**

# All You Need is the Do



by Dennis Madden  
[www.atra.com](http://www.atra.com)

**W**e first covered the Need-Do relationship in the May 2007 issue of *GEARS*. The concept was a departure from what had become a traditional business model in that it wasn't centered on what we have and then finding ways to sell it. Rather, the Need-Do concept requires that you discover the customer's *needs* and then find a way to fulfill them.

The fact is, nobody *needs* a transmission; not even if they put the shifter into drive and their car won't move. Their *need* is generally something else (such as getting the kids to school, getting to work, getting their life back on schedule), and if addressed correctly, your talent as a transmission repair specialist (rebuilder) can be used to fulfill that need.

Need-Do doesn't necessarily mean do whatever's necessary to get them back on the road in the shortest amount of time. And it doesn't mean lowering your standards as a transmission rebuilder by cutting corners to compete with the low-baller down the street. It simply means that you start by *identifying the customer's needs*, and then work to meet those needs, rather than starting with the commodity and try to figure out how to sell it.

I described this idea from the customer's point of view in the last issue with my experience getting my truck smog checked. And there are examples of this popping up around us as shop owners explore this tactic. Kit Lindsay, an ATRA member from Warrensburg, Missouri shares his experience as he reconsiders how he sells his work on page 30 of this issue.

Ideas like this are often met with some type of challenge; that they're a sellout or don't hold true to the concept of being a rebuilder. But I suggest that a change in tactics that starts with the *customer* will ultimately result in more rebuilding, not less. In fact, we learned this from our very first *What's Working* study back in 2006. Shops that had a business purpose centered on the customer scored much higher and were more profitable than those centered primarily on profit.

**It means that you  
start with the  
customer's needs and  
then find solutions to  
meet those needs.**

Think this idea only works for shop owners and transmission rebuilders? It'll work for any business. Earlier this year I was thinking about ATRA, the *What's Working* program for Expo, and our consumer study, when I asked a simple question: "What do our Members need"? Seemed sort of odd to ask that question; we've been at this for so long that you'd think the answer would be second nature by now.

But still I asked. I asked the ATRA staff. I asked our Board Members. I asked ATRA Members I visited, and the answer was always the same: Customers. Our Members need customers.

It became clear then that one of our main goals should be to reach consumers and drive them into ATRA

Members' shops. It seems so obvious now, but as an association that was focused on tech for so long, it was easy to set the controls on autopilot and let the industry set its own path.

This new direction in thinking allowed us to take advantage of opportunities we might otherwise not even have noticed, such as interview opportunities on automotive radio shows, advertising on Facebook, and other ideas we'll share as we progress.

Of course, we never abandoned our technical service or stopped thinking about ways to improve the Golden Rule Warranty program. This new direction simply means that we now focus more on *consumers* and ways to reach *them*, because that's what our Members need.

And it doesn't mean that you, as a transmission rebuilder, have to give up on your finely-honed rebuilding skills. It means that you *start* with the customer's needs and then find *solutions* to meet those needs. Your rebuilt transmission may simply be the best answer for their needs; getting them back on the road with peace of mind that this problem is behind them. Then again, you may find another solution. But still, it starts with the customer.

We'll discover more ways you can meet the needs of your customers at this year's Expo in Las Vegas. You already have everything it takes: You have the expertise... you have the desire... all you *Need* is the *Do*.





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# GM PTO

## Systems; Part 2 of 2



by Steve Garrett  
[www.atra.com](http://www.atra.com)

**W**elcome back. In this segment we will look a little deeper into the GM Power Takeoff (PTO) system.

GM PTO systems consist of a combination of aftermarket- and OE-level parts and components. All of the GM systems since the late 1990s are

computer based and require the use of a scan tool to diagnose and recalibrate the systems. Some applications have the potential for fast idle and PTO operation; others don't.

The application list indicates which vehicles have PTO and fast idle capability, (figure 1) assuming all the

correct components and programming are used:

See Chart 1.

As you may have noticed, the 2007-2008 applications aren't included on the list. GM made major changes to the PTO system for the 07-08 applications. This makes upgrading a non-PTO

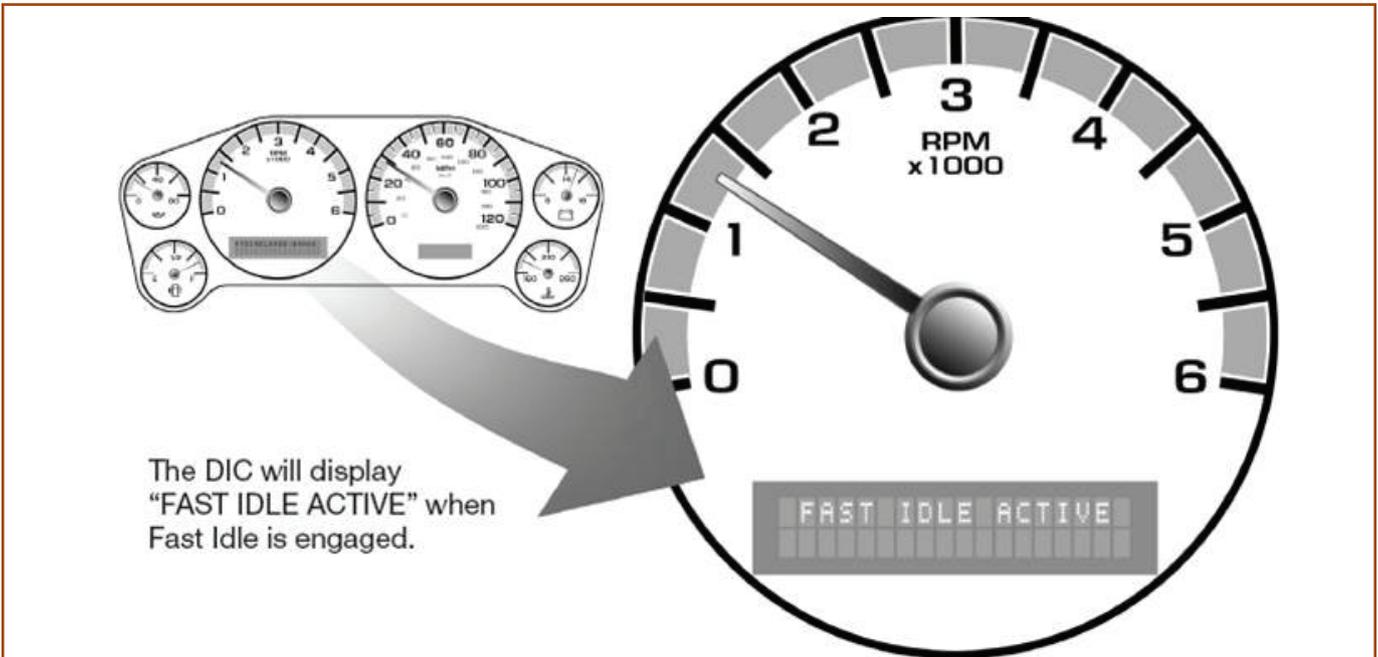


Figure 1

Application	Engine RPO	Gas Diesel	Engine Size	99	00	01	02	03	04	05	06
Savana/Express Vans	LP4,L21, L18	G	7.4L, 8.1L	X	X	X	X				
Savana/Express Vans	L65	D	6.5L	X	X						
Sierra/Silverado	LP4,L21, L18	G	7.4L, 8.1L	X	X	X	X	X	X	X	X
Sierra/Silverado	L65, LB7	D	6.5L, 6.6L	X	X	X	X	X	X	X	X
Suburban/Yukon XL	LP4, L21, L18	G	7.4L, 8.1L	X	X	X	X	X	X	X	X
Topkick/Kodiak	LB7, LG5, LG4,	D	6.6L, 7.2L, 7.8L	X	X	X	X	X	X	X	X
Topkick/Kodiak	L18, LP4, L21	G	7.4L, 8.1L	X	X	X	X	X	X	X	X

Chart 1

# It's a Hit!

## Builders are Raving About The Superior 4F27E Kit

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**The 4F27E Shift Correction Package helps to eliminate or correct the following problems:**

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- Newly designed accumulator pistons included



PART# K4F27E

**Accumulator Buddy™ Brush included. No other special tools or fixtures required.**

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U140-U241..... Part # KO88

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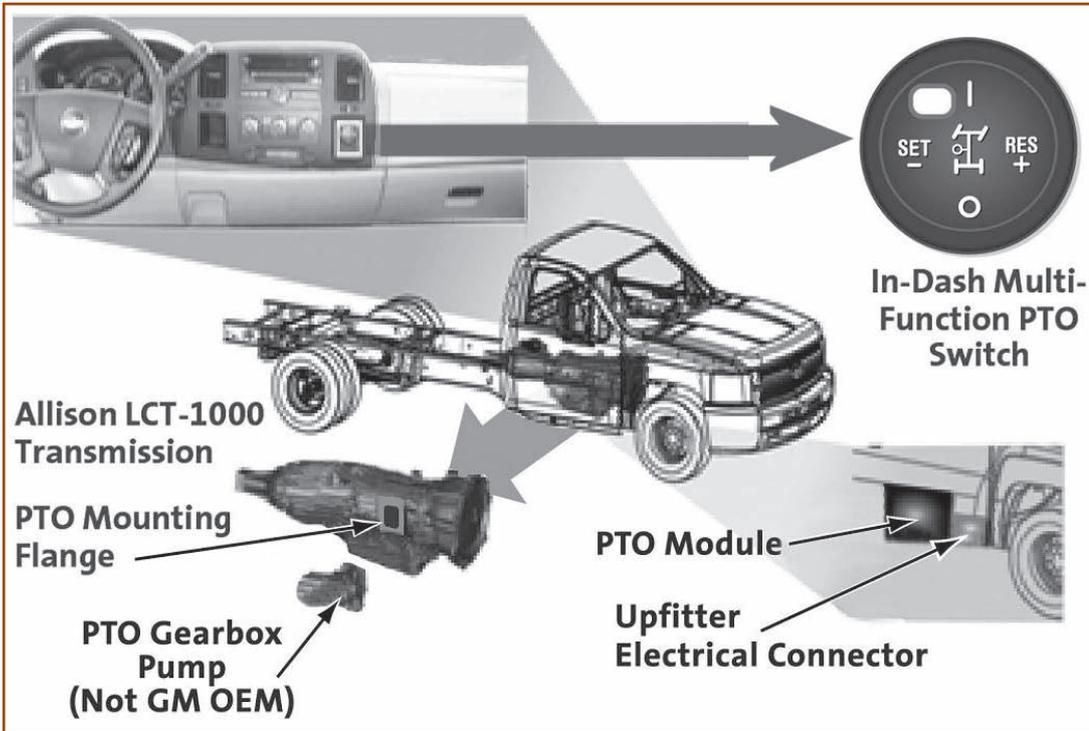


Figure 2

The PTOM performs these functions:

- Monitors the operation of the PTO switch
- Controls the engagement of the PTO relay and PTO
- Monitors the operation of the PTO relay via a feedback circuit
- Inputs and receives information to and from the BCM and ECM. This information is used for engine shutdown, remote start, and PTO operation.
- Inputs information to the instrument panel cluster (IPC) regarding the status of the PTO and the requirements to engage the PTO.

STATIONARY PTO	MOBILE PTO
Release Accelerator	Disengage Cruise Control
Release Brake	Press and Release Brake
Reduce Engine Speed	Reduce Engine Speed
Shift to Park or Neutral	Release Brake
Set Park Brake	

Chart 2

application cost-prohibitive.

GM offers the PTO package, which includes the updated floor pan, wiring, switches, PTO drive gear, upfitter connector, and Power Takeoff Module (PTOM) all under one RPO for the 07-08 model years. To equip a 2007-2008 vehicle for a PTO, GM recommends the customer specify RPO PTO when they order the vehicle.

**2007-2008 System (figure 2)**

**PTO Switch** — The PTO switch is mounted in the cab on the right side of the instrument panel. The switch has 4 positions: Off, On, Set-, and Resume+.

To engage the PTO, turn the switch on. The Power Takeoff Module will engage the PTO relay if all the parameters are met.

The PTO LED mounted in the switch will flash four times a second

until the PTO engages. If the PTO engages, the LED will stay lit constantly. If, after 3 seconds, the PTO fails to engage, the LED will go out. The Power Takeoff Module monitors the PTO relay feedback signal to determine whether the PTO has engaged.

You can use the Set- or Resume+ buttons to increase or decrease the PTO speed in 100 RPM increments. Maximum PTO speed is limited to 2100 RPM.

Turn the switch off to shut the PTO off. The LED indicating PTO operation will go off once the PTO relay has turned off and the engine has reached base idle.

**Power Takeoff Module (PTOM)** — A new controller is used on 07-08 applications to control the operation of the PTO. The Power Takeoff Module (PTOM) is located in a compartment in the right frame rail area.

**Upfitter Connector** — An upfitter connector is located on the right frame rail. This connector provides access to all the remote functions for the PTO, including:

- PTO Enable
- PTO Set
- PTO On
- Remote accelerator
- Remote engine shutdown

**Body Control Module (BCM)** — The Body Control Module (BCM) is a major component in the GM PTO system. The BCM contains the programming for the PTO. The BCM controls the remote start feature for the vehicle and the LED function for the PTO switch.

**Electronic Brake Control Module (EBCM)** — The Electronic Brake Control Module (EBCM) monitors the vehicle speed values and sends that information to the Power Takeoff Module via serial data.

**Engine Control Module (ECM)** — The Engine Control Module (ECM) interfaces with the Power Takeoff Module via serial data. The ECM controls engine speed and engine shutdown. The ECM interfaces with the Body Control Module for the engine remote start function.

**Instrument Panel Cluster (IPC)** — The Instrument Panel Cluster (IPC) communicates with the Power Takeoff



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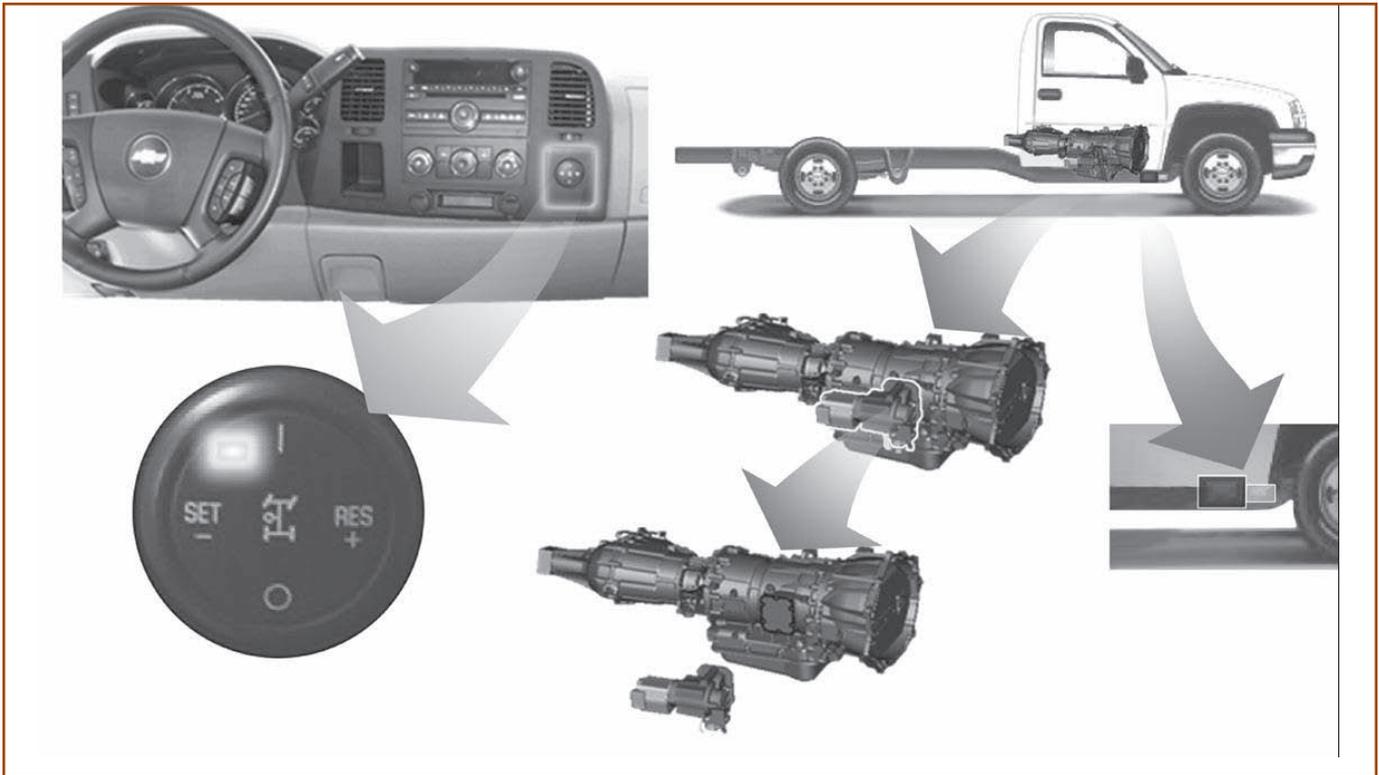
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Module. The IPC displays messages to the driver if the PTO is unable to engage. These messages may include:  
See Chart 2.

**Power Takeoff (PTO) Relay** — The PTO relay is controlled by the Power Takeoff Module. The Power Takeoff Module receives input from the PTO switch. When the operator turns the switch on or off, the Power Takeoff Module will command the relay on or off after the required parameters have been met.

**Transmission Control Module (TCM)** — The TCM provides transmission temperature and gear state information to the Power Takeoff Module. The Power Takeoff Module indicates the PTO status to the TCM. The TCM changes shift points to minimize shift hunting during PTO operation. The TCM is also used to control TCC function during PTO stationary and mobile operation.

### PTO Operation

Like previous PTO systems, the 07-08 system can operate in either stationary or mobile mode. Each mode will have a specific set of criteria that must be met for the PTO to operate. These include:

- Engine must be running.
- Vehicle speed must be less than the maximum PTO limit speed (factory default 50 MPH (80 km/h).
- Cruise control must be turned off.
- The brake pedal must be pressed, then released, and must remain released.
- Engine speed must be less than 1800 RPM when the system is activated.

### Stationary Mode

- Engine must be running
- 0 MPH VSS
- Park brake set
- Park or neutral gear range position
- Brake pedal released

The PTO may be operated remotely in stationary mode. To operate the PTO remotely, all of the criteria listed for the normal stationary mode must be met. Then:

- Press the remote PTO arming switch (position of the switch will vary depending on the application and the upfitter).
- Within 5 seconds, switch the PTO remote switch on.
- The remote PTO LED will indicate PTO operation, first by flashing, then remaining on.
- Once the PTO is engaged, the remote mounted Set/Resume

switch can be used to set the PTO speed.

The PTO will disengage from stationary mode if:

- VSS signal indicates the vehicle is moving.
- You put the shift lever into gear.
- You press the remote engine shutdown switch.
- You switch the PTO switch off.

When the vehicle is in the stationary mode, the operator will have a choice of two modes of operation: preset PTO mode and variable PTO mode. As with earlier GM systems, the preset mode can only be used when the vehicle is stationary.

The values the Power Takeoff Module uses for operation are programmed into the system during production. If the operator wants to change the way the system functions, customized parameters may be entered with a scan tool.

When the PTO is operating in preset stationary mode, the engine standby speed will be about 800 RPM. Pressing Set– or Resume+ will change the engine RPM. Pressing the Set– will change the preset speed to 1250 RPM; pressing the Resume+ button will change the preset speed to 1700 RPM.

Variable mode can function in

Programmable Parameters	Factory Setting
PTO In Cab Control	Enabled
PTO Remote Control	Disabled
Type of Set Switch Operation	Momentary
Press ON then go to Set 1 Speed	Disabled
Remote Engine Start	Disabled
Remote Engine Shutdown	Disabled
Load Feedback	Disabled
Engine Relay	Disabled
Keep Relay Engaged During Braking	Disabled
Action after Brake is Released	Return To Base Idle
Auto Engine Shutdown Timer	Disabled
Engine Shutdown Warning	Enabled
Set Low Fuel Level for Engine Shutdown	15%
Engine Run Time While PTO is Active; Timer	1 Minute
Minimum PTO Engage Speed	500 RPM
Maximum PTO Engine Speed	2100 RPM
Maximum PTO Engage Speed	1500 RPM
PTO Standby RPM	850 RPM
PTO Set 1 Speed	1250 RPM
PTO Set 2 Speed	1700 RPM
Tap Step	100 RPM
Ramp Rate	200 RPM /Second
Maximum Vehicle Speed	129 km/h (80 MPH)
Minimum Remote Accelerator Voltage	0.25 V
Maximum Remote Accelerator Voltage	4.75 V
Remote Set Switch Transition to Low Voltage (<1.66 V)	Set Speed 1
Remote Set Switch Transition to Open State (>1.66 V, <3.33 V)	PTO Standby
Remote Set Switch Transition to High Voltage (>3.33V)	Set Speed 2
<b>Chart 3</b>	

stationary or mobile modes. You can adjust the variable PTO RPM between base idle and 2100 RPM. When operating the PTO in mobile mode, GM suggests you place the transmission in a manual range. This will further enhance the TCM's ability to prevent shift hunting, and it allows the PTO/Engine RPM to be increased without dramatically affecting the vehicle's speed.

### Remote Start

The 07-08 applications have remote start capabilities. The remote start feature includes a remote start arming switch and remote start switch (the location of the switches will vary with application and the upfitter).

The remote start feature is an upfitter-installed option that allows the

vehicle to be started without the driver being in the cab. The remote start feature doesn't depend on the ignition key or the ignition switch position. To provide the remote start function, the BCM must be programmed to enable remote starting.

To operate the remote start feature, these conditions must occur:

- The BCM must be properly programmed.
- The upfitter must equip the vehicle with arming and remote start switches.
- The system must be configured for stationary mode.
- Park brake must be set.
- Vehicle must be at zero MPH.
- The transmission must be in park.
- The hood must be closed.

- The arming switch must be closed.
- Within 5 seconds of closing the arming switch, you must close the start switch.

The engine should now crank.

Once the engine starts, the PTO may be engaged by closing the remote PTO switch. All other PTO functions will remain the same as described earlier.

### Remote Engine Shutdown

Another feature that can be programmed into the new system is remote engine shutdown. With remote operation of the PTO, it's important to be able to shut the engine off remotely.

You can shut the engine down remotely by closing the operator remote switch. The remote switch is an upfitter-installed option, and like other features, the system must be programmed for this feature to operate.

Similar to the remote start system, engine shutdown may occur automatically if any of these conditions occurs:

- A predetermined programmed PTO run time has been exceeded.
- Excessive coolant or transmission temperature
- Low oil pressure or level
- Low fuel level

### System Programming

The 2007-08 PTO system is fully programmable with a scan tool. As with earlier systems, the operator can program the system with factory default values, or the system can be custom programmed to meet a specific need.

Here are the factory program parameters and their default settings from the factory:

See Chart 3.

As you can see, the PTO systems on today's vehicles are becoming more and more sophisticated. As with the other systems we service, the PTO system offers a great opportunity for a shop to profit from this niche market. Remember "success doesn't come to you... you go to it."



# Mercedes 722.9 Preliminary Information; Part 3



by Mike Souza  
[www.atra.com](http://www.atra.com)

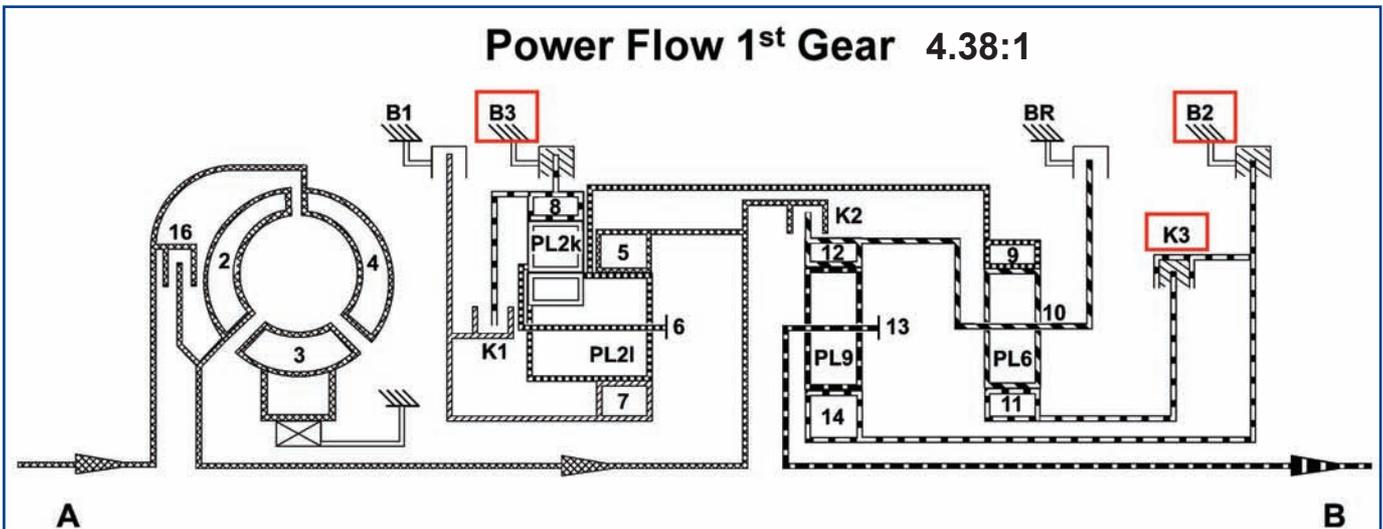


Figure 1

This will be the last of the articles providing preliminary information on the 722.9... I promise. This article provides the powerflow charts (figures 1-9) which include a detailed explanation for the components in use during each gear, along with both reverse gear ratios.

Reverse has two ratios depending on which shift mode you've selected: comfort or sport. And the clutches applied during each gear are highlighted for quick identification. The final drive ratio is noted at the end of each component application.

You'll have to acquire the proper software or scan tool to be able to diagnose and fix one of these vehicles properly the first time out.

## About Gear Noises

In 3rd gear the components of the Ravigneaux gearset are locked together. If a gear noise goes away when the transmission shifts into 3rd gear, look for a problem in the front gearset.

- 2 Turbine wheel
- 3 Stator
- 4 Impeller
- 5 Small internal-gear wheel
- 6 Dual planet carrier
- 7 Sun gear
- 8 Large internal-gear wheel
- 9 Internal-gear wheel
- 10 Planet carrier
- 11 Sun gear
- 12 Internal-gear wheel
- 13 Planet carrier
- 14 Sun gear
- 16 Torque converter lockup clutch

- A Input
- B Output
- BR Multi-disc brake BR
- B1 Multiple-disc brake B1
- B2 Multiple-disc brake B2
- B3 Multiple-disc brake B3
- K1 Multi-disc clutch K1
- K2 Multi-disc clutch K2
- K3 Multi-disc clutch K3
- PL2k Short planet gears
- PL2l Long planet gears
- PL6 Planet gears
- PL9 Planet gears

In 4th gear the components of the Ravigneaux and rear gearsets are locked together. If a gear noise only goes away in 4th gear, look for a problem in the rear gearset.

In 5th gear, all gearsets are locked as one. If a gear noise disappears in 5th gear, check the center gearset.

## Power Flow; 1st Gear

The input shaft drives the Ravigneaux planet small ring gear (5). The long planet gears (PL2l) drive the

short planet gears (PL2k), and cause them to rotate inside the large ring gear (8), which is being held by the B3 brake. This increases the torque and reduces the RPM to the dual planet carrier (6).

The single rear planet ring gear (9) rotates at the same speed, because it's connected mechanically to the dual planet carrier. The planet gears (PL6) rotate around the sun gear (11), which is held by the K3 clutch; this in turn rotates the planet carrier (10).

The single front planet ring gear





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### Power Flow 3<sup>rd</sup> Gear 1.92:1

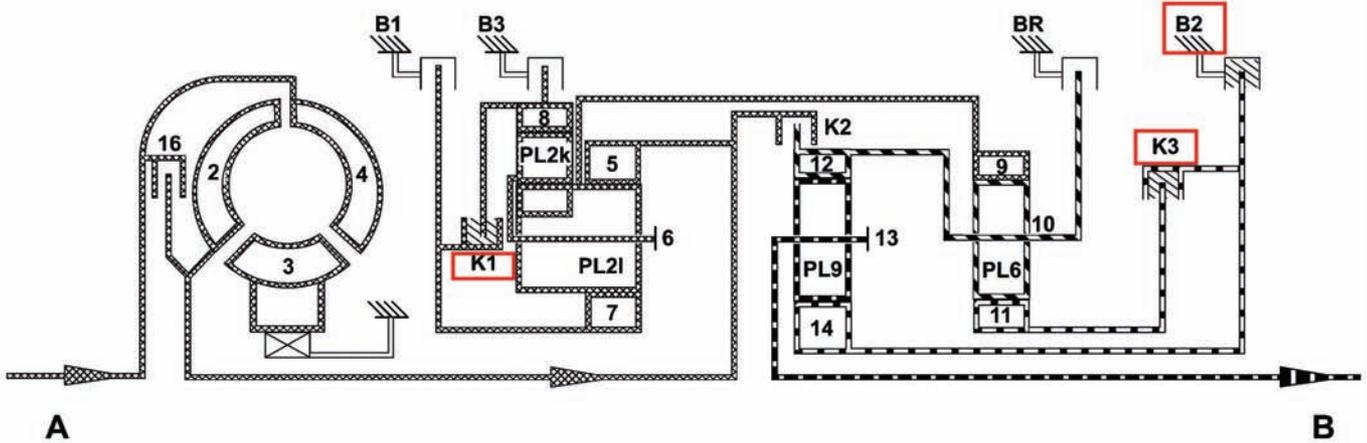


Figure 3

- 2 Turbine wheel
- 3 Stator
- 4 Impeller
- 5 Small internal-gear wheel
- 6 Dual planet carrier
- 7 Sun gear
- 8 Large internal-gear wheel
- 9 Internal-gear wheel
- 10 Planet carrier
- 11 Sun gear
- 12 Internal-gear wheel
- 13 Planet carrier
- 14 Sun gear
- 16 Torque converter lockup clutch

- A Input
- B Output
- BR Multi-disc brake BR
- B1 Multiple-disc brake B1
- B2 Multiple-disc brake B2
- B3 Multiple-disc brake B3
- K1 Multi-disc clutch K1
- K2 Multi-disc clutch K2
- K3 Multi-disc clutch K3
- PL2k Short planet gears
- PL2l Long planet gears
- PL6 Planet gears
- PL9 Planet gears

Note:  
In 3<sup>rd</sup> gear the Ravigneaux gear set is locked as one. If a gear noise is being diagnosed and it goes away when in 3<sup>rd</sup> gear, then check front gear set.

### Power Flow 4<sup>th</sup> Gear 1.37:1

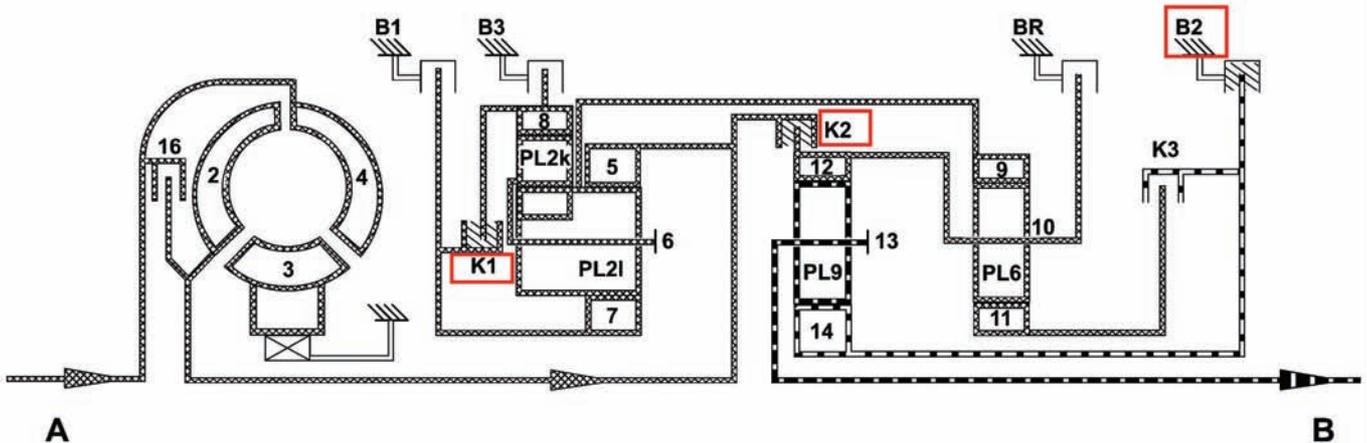


Figure 4

- 2 Turbine wheel
- 3 Stator
- 4 Impeller
- 5 Small internal-gear wheel
- 6 Dual planet carrier
- 7 Sun gear
- 8 Large internal-gear wheel
- 9 Internal-gear wheel
- 10 Planet carrier
- 11 Sun gear
- 12 Internal-gear wheel
- 13 Planet carrier
- 14 Sun gear
- 16 Torque converter lockup clutch

- A Input
- B Output
- BR Multi-disc brake BR
- B1 Multiple-disc brake B1
- B2 Multiple-disc brake B2
- B3 Multiple-disc brake B3
- K1 Multi-disc clutch K1
- K2 Multi-disc clutch K2
- K3 Multi-disc clutch K3
- PL2k Short planet gears
- PL2l Long planet gears
- PL6 Planet gears
- PL9 Planet gears

Note:  
In 4<sup>th</sup> gear the Ravigneaux and rear gear sets are locked as one. If a gear noise is being diagnosed and it only goes away when in 4<sup>th</sup> gear, then check rear gear set.

## Power Flow 5<sup>th</sup> Gear 1:1

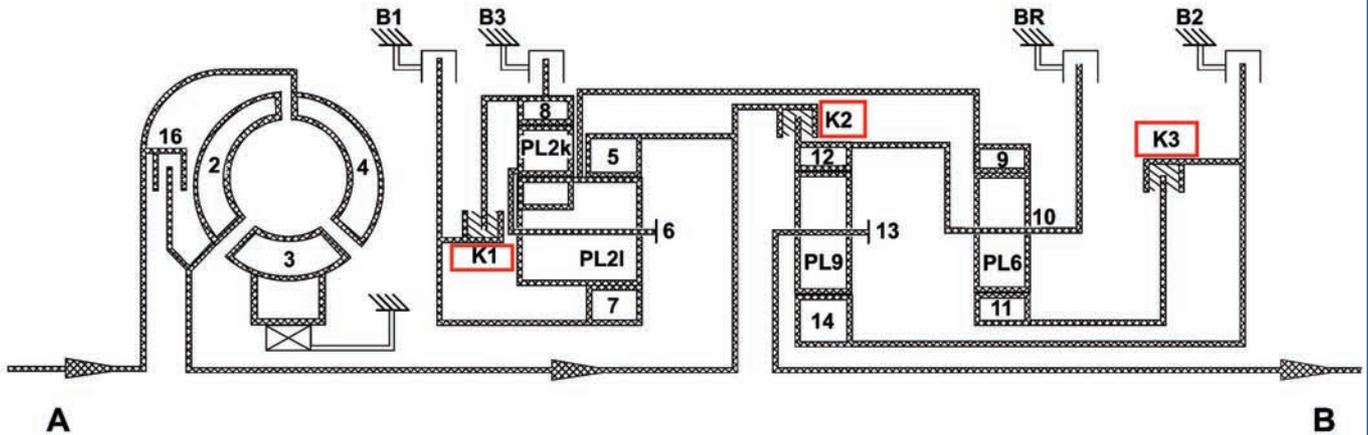


Figure 5

2 Turbine wheel

3 Stator

4 Impeller

5 Small internal-gear wheel

6 Dual planet carrier

7 Sun gear

8 Large internal-gear wheel

9 Internal-gear wheel

10 Planet carrier

11 Sun gear

13 Planet carrier

14 Sun gear

16 Torque converter lockup clutch

12 Internal-gear wheel

A Input

B Output

BR Multi-disc brake BR

B1 Multiple-disc brake B1

B2 Multiple-disc brake B2

B3 Multiple-disc brake B3

K1 Multi-disc clutch K1

K2 Multi-disc clutch K2

K3 Multi-disc clutch K3

PL2k Short planet gears

PL2l Long planet gears

PL6 Planet gears

PL9 Planet gears

Note:

In 5<sup>th</sup> gear, all gear sets are locked as one. If a gear noise is being diagnosed and it only goes away when in 5<sup>th</sup> gear, then check center gear set.



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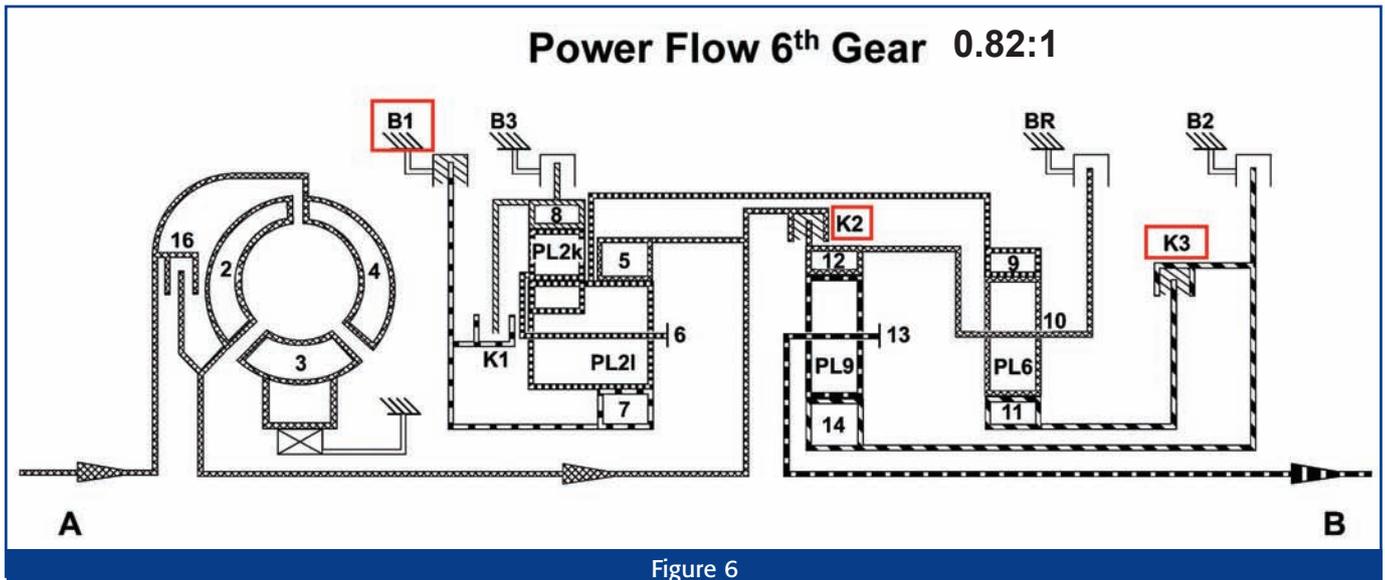
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reduced input speed in the direction of engine rotation at a ratio of 1.37:1.

Note: In 4th gear the components of the Ravigneaux *and* rear gearsets are locked together. If a gear noise only goes away in 4th gear, look for a problem in the rear gearset.

## Power Flow; 5<sup>th</sup> Gear

With the K1, K2 and K3 clutches engaged, the power flow runs from the input shaft via the locked Ravigneaux planetary gearset components (5, 6, 7, 8, PL2l and PL2k) and the locked front single planetary gearset (12, 13, 14 and PL9) to the output shaft.

The output shaft rotates at the same speed as the input shaft in the direction of engine rotation at a ratio of 1:1.

Note: In 5th gear, all gearsets are locked as one. If a gear noise is being diagnosed and it only goes away when in 5th gear, check the center gearset.

## Power Flow; 6<sup>th</sup> Gear

The input shaft drives the Ravigneaux planet small ring gear (5). The long planet gears (PL2l) rotate around the sun gear (7), which is held by the B1 brake. This transmits increased torque and reduced rpm to the dual planet carrier (6).

The single rear planet ring gear (9) rotates at the same speed as the dual planet carrier, because they're connected mechanically. The planet gears

- |                             |                                   |
|-----------------------------|-----------------------------------|
| 2 Turbine wheel             | 12 Internal-gear wheel            |
| 3 Stator                    | 13 Planet carrier                 |
| 4 Impeller                  | 14 Sun gear                       |
| 5 Small internal-gear wheel | 16 Torque converter lockup clutch |
| 6 Dual planet carrier       |                                   |
| 7 Sun gear                  |                                   |
| 8 Large internal-gear wheel |                                   |
| 9 Internal-gear wheel       |                                   |
| 10 Planet carrier           |                                   |
| 11 Sun gear                 |                                   |

- |                           |
|---------------------------|
| A Input                   |
| B Output                  |
| BR Multi-disc brake BR    |
| B1 Multiple-disc brake B1 |
| B2 Multiple-disc brake B2 |
| B3 Multiple-disc brake B3 |
| K1 Multi-disc clutch K1   |
| K2 Multi-disc clutch K2   |
| K3 Multi-disc clutch K3   |
| PL2k Short planet gears   |
| PL2l Long planet gears    |
| PL6 Planet gears          |
| PL9 Planet gears          |

(PL6) rotate the sun gear (11), which rotates the sun gear (14) through the K3 clutch.

Input torque and input speed are transmitted to the single front planet ring gear (12) through the K2 clutch. The speed difference between the sun gear (14) and the ring gear (12) sends increased speed and reduced torque to the output shaft through planet carrier (13).

The output shaft rotates with reduced input speed in the direction of engine rotation at a ratio of 0.82:1.

## Power Flow; 7<sup>th</sup> Gear

The input shaft drives Ravigneaux planet small ring gear (5). The long planet gears (PL2l) drive the short planet gears (PL2k) to rotate inside the large ring gear, which is held in place by the B3 brake. This increases torque and reduces rpm to the dual planet carrier (6).

The single rear planet ring gear (9) rotates at the same speed as the dual planet carrier, because they're con-

nected mechanically. The planet gears (PL6) rotate the sun gear (11), which in turn rotates the sun gear (14) through the K3 clutch.

Input torque and speed are transmitted to the single front planet ring gear (12) by the K2 clutch. The speed difference between the sun gear (14) and ring gear (12) produces increased speed and reduced torque to the output shaft through planet carrier (13).

The output shaft rotates with reduced input speed in the direction of engine rotation at a ratio of 0.73:1.

## Power Flow; Reverse in "S" Mode

The input shaft drives the Ravigneaux planet small ring gear (5). The long planet gears (PL2l) rotate around sun gear (7), which is held by the B1 brake. This transmits increased torque and reduced rpm to the dual planet carrier (6).

The single rear planet ring gear (9) rotates at the same speed as the dual planet carrier because they're con-

## Power Flow 7<sup>th</sup> Gear 0.73:1

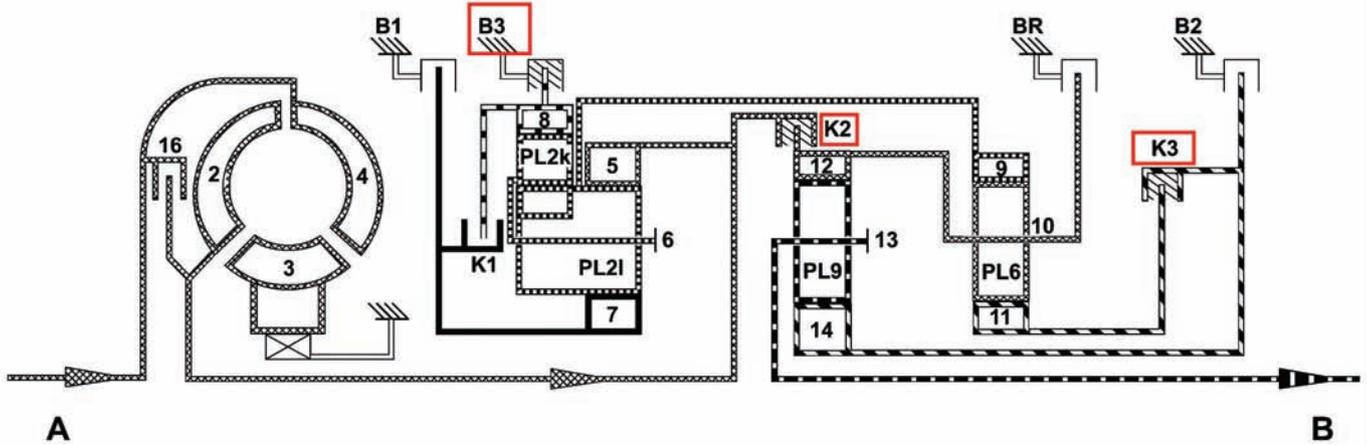


Figure 7

- 2 Turbine wheel
- 3 Stator
- 4 Impeller
- 5 Small internal-gear wheel
- 6 Dual planet carrier
- 7 Sun gear
- 8 Large internal-gear wheel
- 9 Internal-gear wheel
- 10 Planet carrier
- 11 Sun gear
- 12 Internal-gear wheel
- 13 Planet carrier
- 14 Sun gear
- 16 Torque converter lockup clutch

- A Input
- B Output
- BR Multi-disk brake BR
- B1 Multiple-disc brake B1
- B2 Multiple-disc brake B2
- B3 Multiple-disk brake B3
- K1 Multi-disk clutch K1
- K2 Multi-disk clutch K2
- K3 Multi-disk clutch K3
- PL2k Short planet gears
- PL2l Long planet gears
- PL6 Planet gears
- PL9 Planet gears

## Power Flow Reverse Gear in 'S' Mode 3.42:1

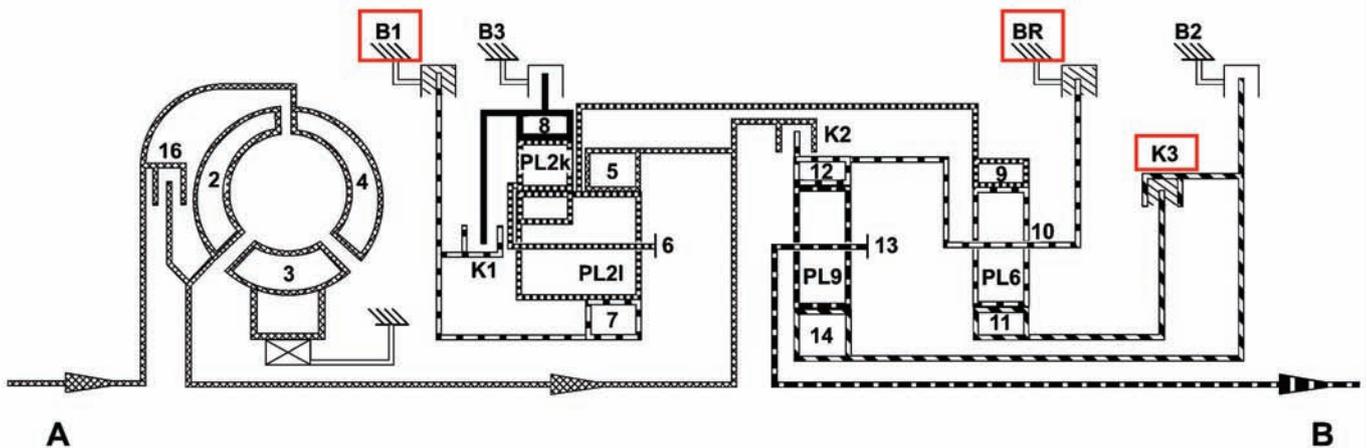


Figure 8

- 2 Turbine wheel
- 3 Stator
- 4 Impeller
- 5 Small internal-gear wheel
- 6 Dual planet carrier
- 7 Sun gear
- 8 Large internal-gear wheel
- 9 Internal-gear wheel
- 10 Planet carrier
- 11 Sun gear
- 12 Internal-gear wheel
- 13 Planet carrier
- 14 Sun gear
- 16 Torque converter lockup clutch

- A Input
- B Output
- BR Multi-disk brake BR
- B1 Multiple-disc brake B1
- B2 Multiple-disc brake B2
- B3 Multiple-disk brake B3
- K1 Multi-disk clutch K1
- K2 Multi-disk clutch K2
- K3 Multi-disk clutch K3
- PL2k Short planet gears
- PL2l Long planet gears
- PL6 Planet gears
- PL9 Planet gears

nected mechanically.

The planet gears (PL6) rotate around the sun gear (11). The sun gear's rotational direction is reversed by the planet carrier (10), which is held by the BR brake.

The applied K3 clutch connects the sun gear (14) to sun gear (11). This causes both sun gears to rotate at the same speed and direction and drive the planet gears (PL9). This increases torque and reduces rotational speed to the output shaft through the planet carrier (13).

The output shaft rotates at a reduced input speed in the *opposite* direction of engine rotation at a ratio of 3.42:1.

### Power Flow; Reverse in "C" Mode

The input shaft drives the Ravigneaux planet small ring gear (5). The long planet gears (PL2l) drive the short planet gears (PL2k), which rotate

inside the large ring gear (8) as it's held by the B3 brake. This transmits a decreased rotational speed to the dual planet carrier (6).

The single rear planet ring gear (9) rotates at the same speed as the dual planet carrier because they're connected mechanically.

The planet gears (PL6) rotate around the sun gear (11). The planet carrier (10) reverses the rotational direction of the sun gear, which is held by the BR brake.

The K3 clutch connects the sun gear (14) to the sun gear (11). This causes both sun gears to rotate at the same speed and direction and drive the planet gears (PL9). This increases torque and reduces rotational speed to the output shaft through the planet carrier (13).

The output shaft rotates at reduced input speed in the *opposite* direction of engine rotation at a ratio of 2.23:1.

That's all there is to it. By this time you should have a good working understanding of the 722.9 transmission. And as any good technician knows, understanding how it works is 90% of the battle when it comes to diagnosing and repairing a transmission.

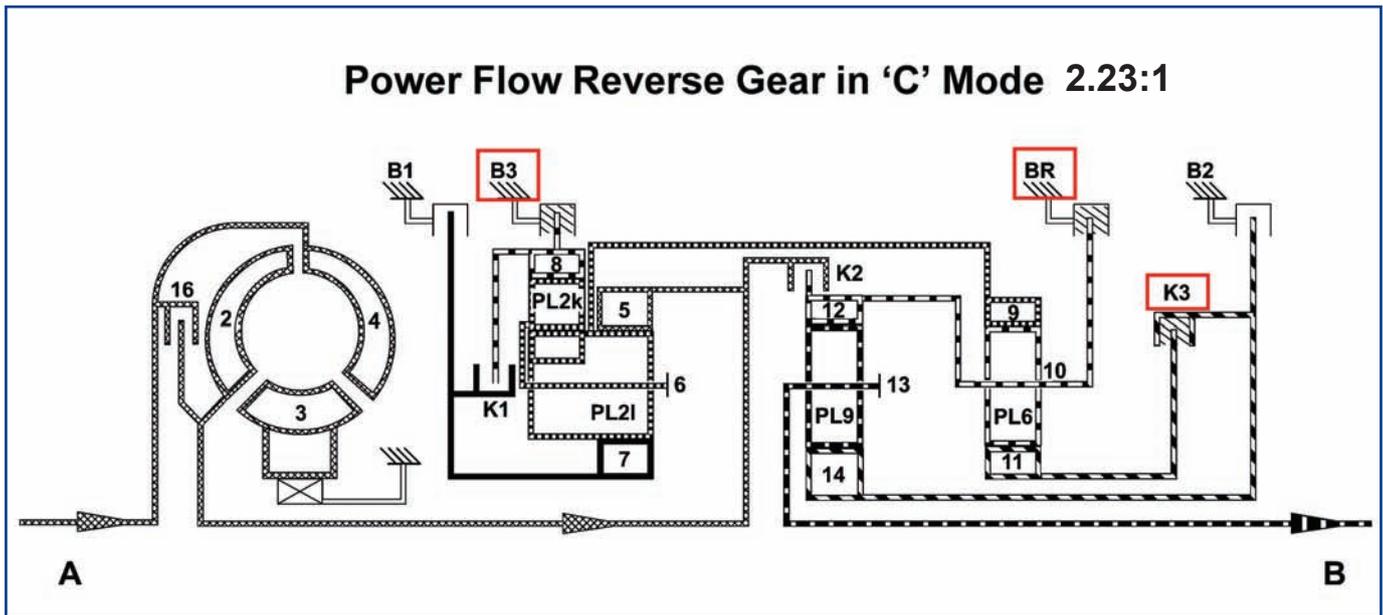


Figure 9

- 2 Turbine wheel
- 3 Stator
- 4 Impeller
- 5 Small internal-gear wheel
- 6 Dual planet carrier
- 7 Sun gear
- 8 Large internal-gear wheel
- 9 Internal-gear wheel
- 10 Planet carrier
- 11 Sun gear
- 12 Internal-gear wheel
- 13 Planet carrier
- 14 Sun gear
- 16 Torque converter lockup clutch

- A Input
- B Output
- BR Multi-disc brake BR
- B1 Multiple-disc brake B1
- B2 Multiple-disc brake B2
- B3 Multiple-disc brake B3
- K1 Multi-disc clutch K1
- K2 Multi-disc clutch K2
- K3 Multi-disc clutch K3
- PL2k Short planet gears
- PL2l Long planet gears
- PL6 Planet gears
- PL9 Planet gears

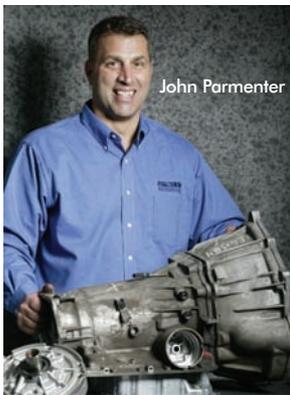


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# PRECISION<sup>TM</sup> Keeping Ahead of an Ever-Changing Market

## INTERNATIONAL



**T**wo years ago this past July, Precision International moved its 145 employees into its new building in Yaphank, New York. The move more than doubled its office and warehouse space, and Precision was able to put everything under one roof. This move was planned for years and has helped Precision continue to stay ahead of this topsy-turvy automatic transmission aftermarket.

Frank Miller, vice president and general manager, says, "While we knew our industry was going through some strange times, we were, and still are, very confident in our ability to continue to grow our business. And part of that growth plan included expansion of our physical plant."

"The move created many efficiencies which has helped Precision and its customers stay competitive," Sales Manager John Sollazzo adds. "Our market may have changed, but what hasn't changed is the fact that people are going to have to have their transmissions repaired.

"Our marketplace has definitely expanded to a world market, which makes what we do with kit packaging

even more of a challenge; automatic transmissions are showing up in countries that a few years ago were almost exclusively manual.

"We have to be able to bring kits to market that fit applications in China, the Middle East, Europe, and so on. Just because the unit designation is the same doesn't mean the unit is the same in different parts of the world."

Engineering Manager Vinny Soverio and his engineering department are responsible for all the research and development that goes into every new Precision kit. "The toughest part still remains getting units from different parts of the world, to be sure we're building the kit correctly for that market," explains Vinny. "We're fortunate to have contacts all over the world that help us obtain these units. We also continue to pursue any new units aggressively. These units allow us to be sure our product will work in a specific marketplace."

Another situation that Precision International has to contend with is that many units can be found in several manufacturers' vehicles at the same time, each one slightly different, to



Dennis Marshall – Owner/President



John Sollazzo – Sales Manager

**“Vinny and his people including Technical Advisor John Parmenter, field literally hundreds of calls a month about units that are new to our marketplace.”**

make their version unique.

“Take the JF506E for example; this unit can be found in cars manufactured by VW, Ford, Volvo, Jaguar and Mazda. We had to research each unit, to be sure we had them all covered,” Sollazzo explains. “And what we are most proud of is that we do all that, and 9 times out of 10 we bring the kit to market before any of our competitors. That’s significant because it means we’re keeping our distributors out in front in the aftermarket. And it’s a powerful sales tool when trying to sell a new customer our product line.

“We track calls for new kit availability and prioritize them based on demand. That helps us go back and fill the pipeline once the kit is developed,” Sollazzo continues. “But more importantly, it allows us to know what units people are looking for, so we can do the R&D and bring the kit to market.”

Michael Glassberg, VP of sales, adds, “Remember, we’re doing this for our customers all over the world. The expense and dedication it takes to develop a marketable overhaul kit is tremendous; we always have several plates spinning on sticks at the same time. We’re the ones putting the pressure on ourselves, and it’s always a challenge. But when we project a new unit to be a big mover and we’re right, it’s worth all the hard work.”

Miller adds that it’s important to project as correctly as possible: “Most times we’re going to need parts tooled for a new unit. Tooling costs have continued to increase, so we have to be sure the money is being spent wisely. The good thing about our group here is that we all understand this market and



Sales Staff



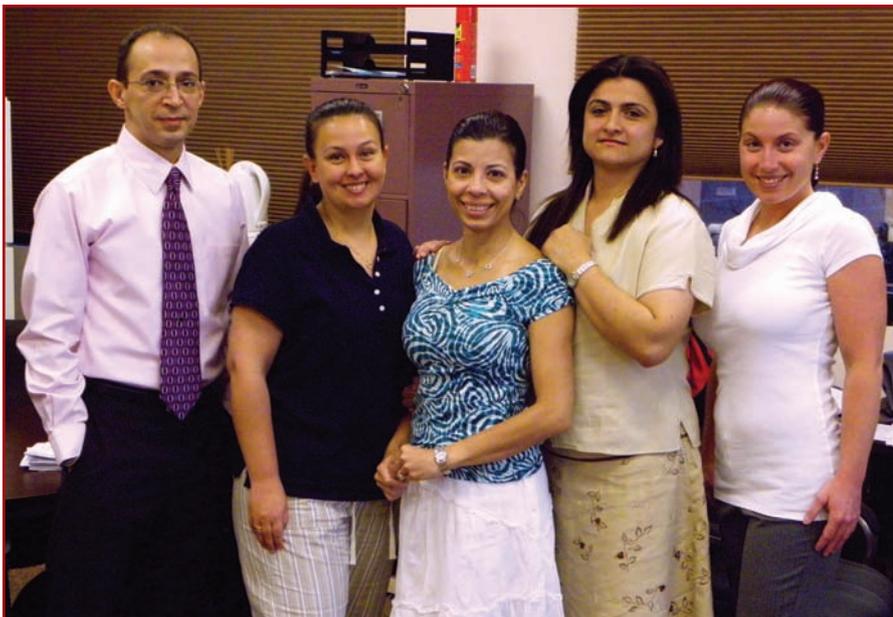
Frank Miller – VP /GM



Vinny Soverio – Engineering Manager



Engineering Staff



Accounting Staff



Warehouse Dept. Heads

how important these decisions are.”

Sollazzo points out that something else Precision does is build kits for some lesser volume units. “For example we had many calls for the Saturn Vue kits. Nobody else has even considered building them, yet we invested the money and have brought a kit to market. This is what distributors have come to expect from us.”

Precision International also takes advantage of the knowledge and experience of its distributors’ customer base whenever it can. “We make it a point of spending time out in the field visiting shops,” says Soverio. “The information and input we receive is extremely

important and reflects directly in our kits. We’re also expanding our Advisory Board to provide us with a wider, more diverse group, which of course will add value to our product.”

The Advisory Board is a group of transmission shop owners and rebuilders from several different states that meets several times a year at the Yaphank facility and discusses industry trends, products and needs. This information is analyzed and ultimately finds its way into the Precision International overhaul kits.

Another important tool that Precision uses to gather information is world travel. Michael Glassberg spends

a large portion of his time abroad; he takes the same approach there that they use in the US, visiting rebuilders and gathering information from them that Precision can incorporate into its product.

“In our effort to stay out in front, we all understand the importance and significance of the end user,” says Sollazzo. “They will be the ones who help us mold the kit to fit their individual requirements, whether those requirements are in New Jersey or Budapest. As we said before, gathering all the info and funneling it into a finished, marketable product is what we feel we are the best in the industry at doing.”

Frank Miller points out that, because of the reputation Precision International has developed for bringing kits that are complete and correct to the market, first they handle many inquires and tech calls on these new transmissions. “Vinny and his people, including Technical Advisor John Parmenter, field literally hundreds of calls a month about units that are new to our marketplace.” The calls they receive come from all over the world; a testament to the reputation PI has developed in the industry as a leader in kit development.

In addition, Precision has always included a *Precision Pointer* in every new kit they develop; this fact sheet helps the rebuilder who may be working on that type of unit for the first time.

Precision International has always been a supporter of industry trade shows and weekend regional trade seminars where they can meet with rebuilders face to face. Precision often supplies speakers for these meetings, and has sponsored tech seminars all over the world, including Puerto Rico, China, Australia and Mexico. Sollazzo explains, “Being out in the field, providing the industry with as much information as possible, has proven to be an invaluable sales tool for us as we continue to grow our marketplace.”

Precision also maintains a state-of-the-art web page at [www.transmissionkits.com](http://www.transmissionkits.com). Beside the basic catalogs and company news, the site includes an active Rebuilder Forum that lets Precision stay in contact with the industry. Precision’s technical team

**Precision also maintains a state of the art web page found at [www.transmissionkits.com](http://www.transmissionkits.com)**

fields questions and solves builder issues, as well as posting a series of TECH TIPS, many of which have nothing to do with rebuilding kits, but are posted to help the rebuilder.

One of the real 'builder-friendly' items — and the best part of the web page — is a series of technical videos available on the site. There are currently over 20 videos posted and more in the works. They're posted every several weeks and are totally free for the end user to view.

Miller points out, "We understand that we need to give something back to the industry, and we try to do that every day by providing as much technical information as we possibly can."

As John Sollazzo said, "We like our position in the industry; we enjoy the hard work it takes to stay there, and everyone here understands that the builder has a choice in what product he uses. Our main focus continues to be on making sure he understands all that's available to him by choosing Precision International rebuilding kits."

Precision International will continue to be a leader in the transmission aftermarket, offering the same dedication and determination that led it to this point, all while remembering its mission: to bring a product to the market that people are looking for now and in the years to come. 



Jack Schweit- Warehouse Manager



QC area

**Retaining Our Workforce**

As a longtime GMSPO supplier, the recent downturn and ultimate bankruptcy of GM was a large point of concern for all of us at Precision International. Precision International continues to be a family owned business that has seen a steady growth, Frank Miller VP and GM who handles much of the OE business states, "We have come through the whole situation in very good shape, and we feel our OE business opportunities will continue to grow as we move forward." Miller continues, "What I am most proud of is that through it all we have been able to retain our entire workforce, not cut back on any benefits the employees have been receiving and in fact have been able to see slight growth during a tough time in our country. The fact that we were able to maintain and grow our business makes me believe our business plan is sound."



Production Area



by Jon Rodriguez

# 20 Steps to SUCCESSFUL Transmission Repair

**T**here was a time when the dirtiest our hands ever got was when we were playing with Tonka trucks in the mud. Before our parents knew it, we were playing with real trucks in the mud, and before we knew it, we were getting our hands dirty inside the engine compartments.

Do you remember the first toy you played with? The first bolt you loosened? Do you remember the first transmission you rebuilt without looking up any reference material or asking for help? Chances are you don't. Before you knew it, you were just building transmissions with the know-how you

seemed to be born with. That's the evolution of learning.

In this edition of *Playing with Fire*, we're going for a shout out to the young rebuilders of our industry. Transmissions are getting tougher, we're not getting any younger, and the new guys are our future.

I recently had a call on the HotLine from a veteran builder who was teaching his helper how to rebuild transmissions. He was looking for a bulletin that listed the 20 steps to a successful transmission repair; bulletin #079 written by Glenn Troub in November, 1991.

In this article, I'm going to cover each step, and edit a few things that have changed in

the 18 years since that bulletin was written. But what's surprising is just how much hasn't changed a bit in all those years.

**Step 1:** Before you start to work on a transmission, read the ATRA bulletins pertaining to that transmission. (If you do this every time, before you know it you'll have them memorized.)

The new ATRA OnLine makes this step even easier by having a "Rebuild/Install" option under every transmission listed. These bulletins provide solutions for common problems or part numbers for upgrades. Keep in mind that manufacturers sometimes release bulletins for internal upgrades or problems, so use your repair software to access the latest bulletins released by the factory.

**Step 2:** Clean the entire transmission, including the valve body.



Trays like this work well for keeping valves and springs in the correct order and location. Your local transmission parts supplier can easily obtain these trays for you.

Figure 1



USE A .0015" FEELER GAUGE AND STRAIGHT EDGE TO CHECK FOR WARPING

Figure 2

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AODE	Pump sta. 93-02
A518	Dir. Drum (3cl.)
5R55E	O/D Planet 95-02
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The foundation of a successful rebuild is cleanliness. In areas where clutch material or fine metal has accumulated, use solvent or brake clean to help loosen the material before placing the parts in the wash tank.

Never use a rag to dry parts; a little lint from a rag can pose a big problem later on when it makes its way into a small filter or solenoid. Always dry parts

with filtered air, and if any contamination shows up while blowing the part, wash it again. Blowing the contamination away doesn't work!

Always clean valve bodies with fresh solvent or brake clean only. Never put a valve body in a wash tank. Standard rebuild procedure dictates that you remove all valves and springs during valve body servicing. Trays are available to help keep springs and valves organized and in the correct order (figure 1).

Always lubricate the valves with clean ATF before checking for free movement. Use a pocket screwdriver and a dull, right-angle pick in combination to make sure the valve has free movement throughout its bore.

**Step 3:** Check pumps, valve bodies, and cases for warping.

Use a 0.0015" feeler gauge and a straightedge to check for flatness (figure 2).

**Step 4:** Flat file pumps, valve bodies, and cases; just a few strokes with the file to knock off high spots and handle burrs.

Flat filing is a great way to check for warping. Flat stones and files are equally effective. The stones are good for wet sanding, and quickly knock off any loose pieces of material, especially around the bolt holes. The stones should only be used while cleaning in an EPA-approved solvent.

When dry, use a flat file, putting

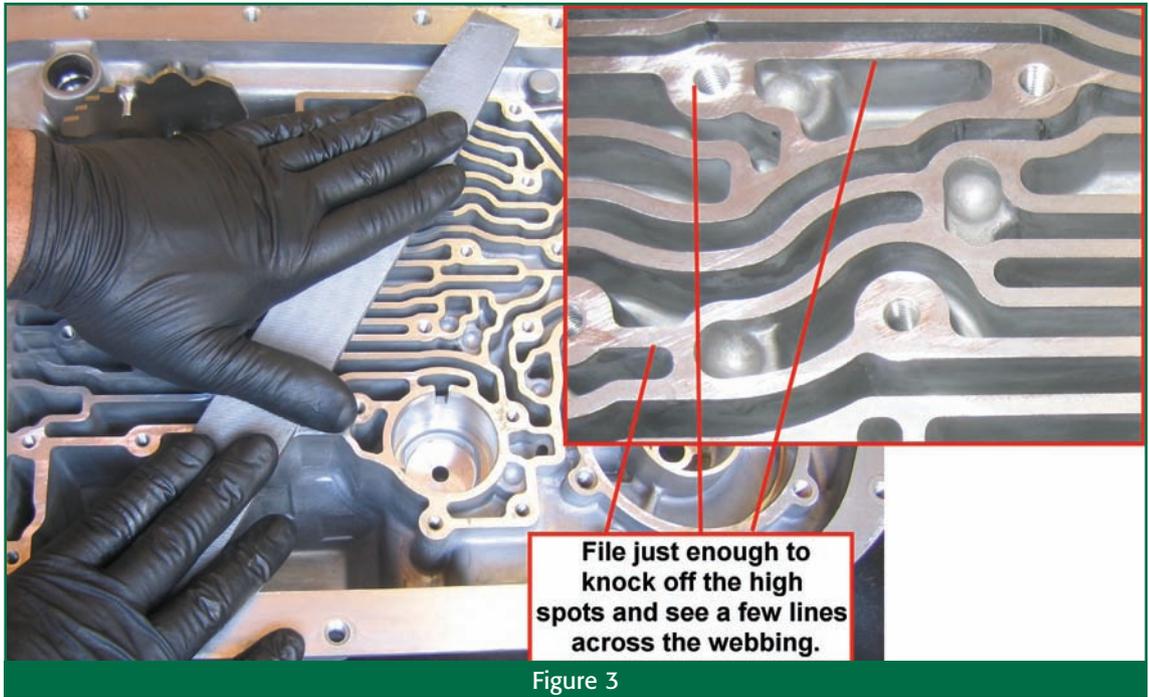


Figure 3

light pressure on the file on the forward stroke only. The pattern should look similar to a light, "crayon-like" coloring pattern (figure 3). Make sure to clean off any excess filings with brake clean and compressed air.

**Step 5:** Check all pump gear clearances.

There are three areas to check on pump gears or rotors:

1. Ears or slots used

to mate with the torque converter. Replace when wear at the tabs or slots exceeds 0.050" or if a groove is worn on the inner diameter of the gear (figure 4).

2. All sides of the gear. Any sign of metal transfer on any side of the gears is unacceptable. Minor scratches can be hand buffed with Scotchbright, but if you can feel it when you run your fingernail



Figure 4

across the scratch, it's a failed part.

3. Pump cavity clearance. 0.002" on the outside diameter between the pump cavity, and 0.004" between the crescent and inner pump gear are universal specifications for most pumps.

Using a pump with any of the above issues will cause reduced pump volume and a guaranteed comeback.

**Step 6:** Check planet pinion endplay and side-to-side motion.

Check each planet as soon as you remove it during disassembly. Move the gears up and down for endplay checks and rock from top to bottom to test for pinion wear at the bearing or carrier. Pay special attention to pinions that are welded into the carrier. Welds often crack and allow the pinion to rock (figure 5).

**Step 7:** Lubricate all planet assemblies.

Always wash planets, Torrington bearings, or any parts with enclosed bearings in EPA-approved solvents. Using water-based methods such as hot tanks dry the bearings and make it hard to judge a problem with bearing feel. Wash in solvent, blow dry, and squirt ATF on the planet during assembly.

**Step 8:** Soak all friction materials in the appropriate ATF for 15-30 minutes.

**Step 9:** Replace all steel plates or reuse them as is; never sand them.

Friction plates have evolved tremendously in the past 15 years. The trend toward smooth shifts has created clutch material that's softer and more porous than earlier designs. The theory is to let the clutch absorb and discharge a higher volume of fluid to help dissipate heat.

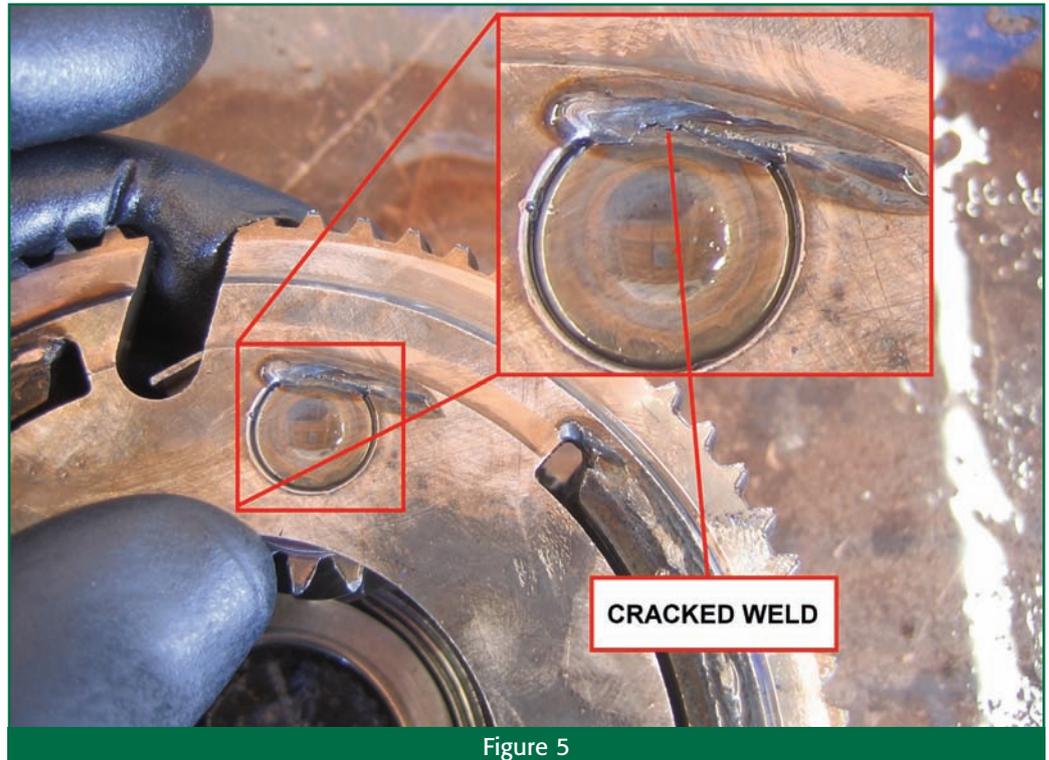


Figure 5

With this softer material comes the need for smooth steels. Any imperfections due to heat or sanding the steels will shorten clutch life. A little gloss on the steel is acceptable. As long as the steels and pressure plates are flat, they can be reused. Hot spots aren't acceptable.

**Step 10:** Resurface all drums where a band rides.

Use a medium and then fine emery cloth to give the band surface a "brushed" look (figure 6). Never attempt to sand out grooves.

Before you even start sanding the drum, check for dishing with a straight-

edge. You can't sand that out; the drum will have to be turned professionally or replaced.

**Step 11:** Replace all sealing rings.

**Step 12:** Check all sealing rings and rubber components in their bores for proper fit.

As you replace every sealing ring and rubber seal, immediately fit it into its respective bore. Try to build components in order, so that once you've fitted the seal into its groove, you can place it into its mating part. The more time the seal has in its bore, the lower your chances of cutting the seal during installation.

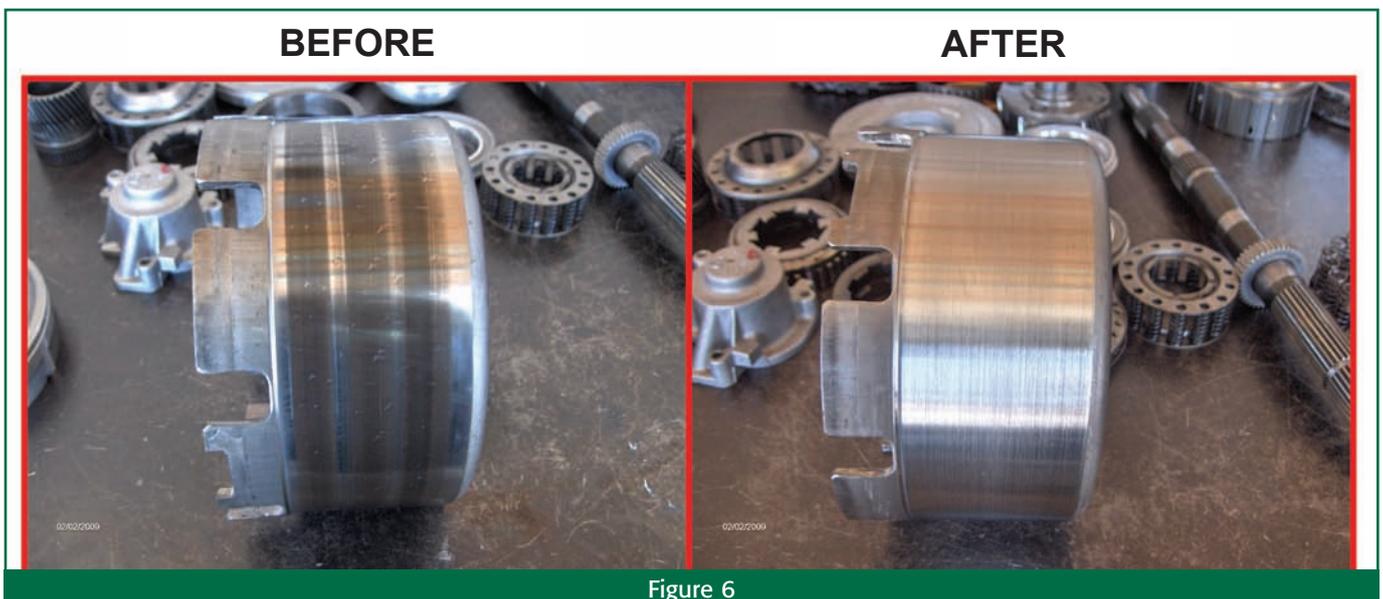


Figure 6

It's a good idea to start rebuilds at the pump, so the adjacent drum's sealing rings can begin sizing right away, and can easily be air checked.

Treat all aluminum surfaces where a rubber seal rides with the maroon-colored Scotchbright pads. A light crosshatch will show in a few light strokes and prolong the life of the ring by holding more surface oil (figure 7).

**Step 13:** Replace all bushings.

Five steps to removing and installing a bushing:

1. Look for the shortest distance for removal and for any one-way lips that the bushing is sitting on. Some pumps have a lip on the rear of the bushing, and some have a lip on the front. Make sure to check your application before striking or you may damage the pump.
2. When using a hammer and bushing splitter, make the strike where the two ends of the bushing meet (figure 8). This usually breaks the bushing in half on the first strike.
3. Any burrs in the bore where the bushing is pressed in should be filed smooth. Any raised scuffs or burrs will cause a tight or uneven fit when you press the bushing in.
4. Use an arbor press to install bushings when possible. This provides

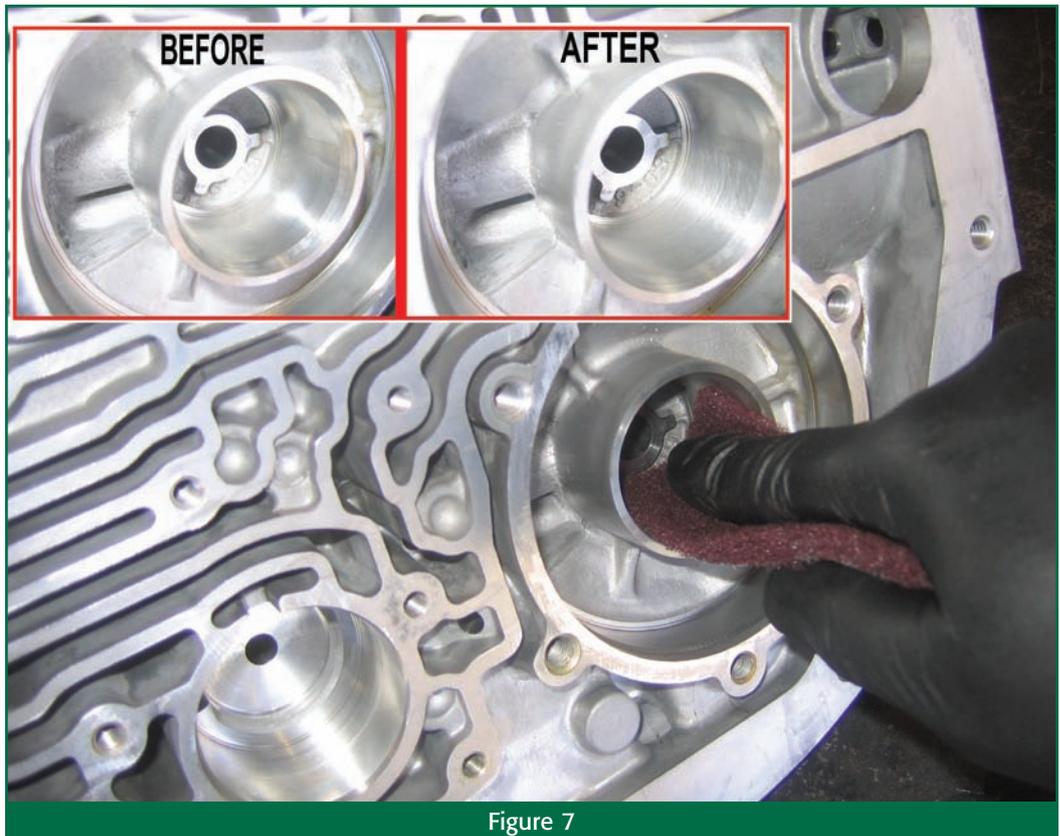


Figure 7

more placement control and less stress to the bushing, is easier on the part, and makes it harder to damage the bushing or part.

5. Finally, always place the freshly installed bushing over the supporting part and check for drag.

**Step 14:** Pre-lubricate all bearings and thrust washers.

A simple squirt bottle filled with ATF works great. It's worth it to get the industrial spray bottles because the ATF will kill the pumps on cheaper bottles. Squeeze bottles work fine. Be generous; squirt clean ATF between

every bearing, washer, and all over the planets.

**Step 15:** Prelube the pump.

Squirt ample amounts of ATF into the pump cavity and on the pump halves' webbing. Use your hand to smear an even layer of fluid across the surfaces to make an oil seal (figure 9). This technique guarantees immediate pump function and eliminates issues with delayed engagements or fluid burping on startup.

Torque every bolt associated with the pump in a star pattern.

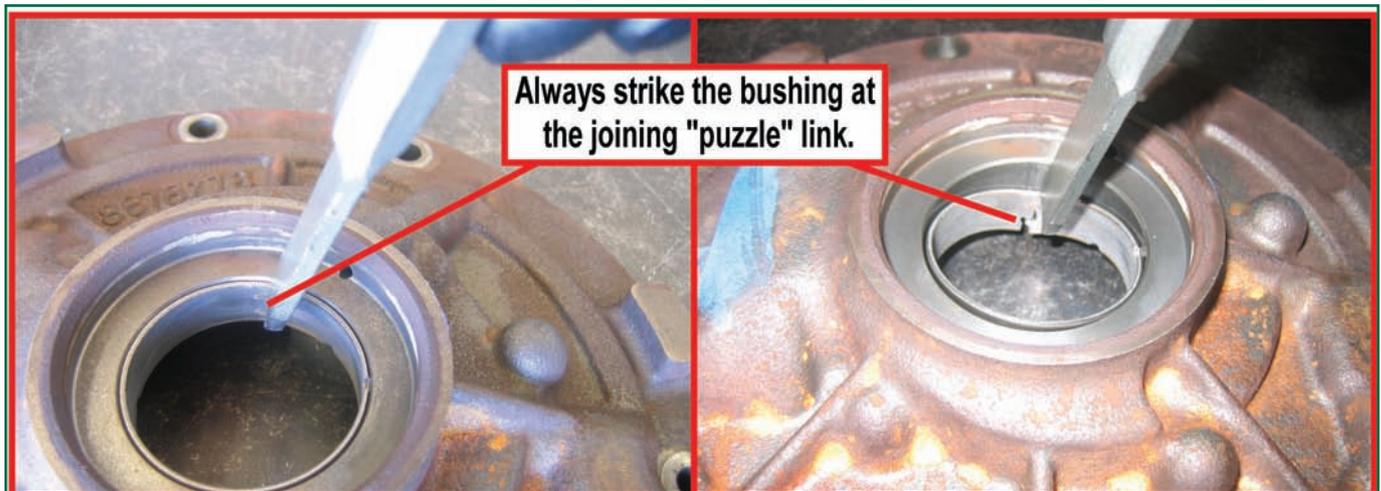


Figure 8



Use your hand to wipe fluid across the entire webbing of the pump.

Figure 9

**Step 16:** Prefill torque converters.

A quart of the recommended fluid for that transmission right down the throat of the converter can only help.

**Step 17:** Use available manuals to find specifications.

In 1991, there were manuals; today we have computer software and electronic reference material. ATRA's Technical Department can get you whatever you need at the push of button or phone call. Never guess!

**Step 18:** Set correct clutch and band clearances.

**Step 19:** Take the time to set total unit endplay.

Here's a shortcut for setting up critical clearances: Measure and record unit endplays and clutch pack clearances before dismantling. If the unit can be repaired with little hard part replacement, you'll already know what the starting endplay was. Add or subtract to achieve specification the first time.

Clutch packs that are like new will show you what the stock clearances are. This will help you know how to adjust the clutch packs when they come in damaged.

**Step 20:** Use a torque wrench on all pumps and valve bodies.

The first 19 steps would be wasted away without step 20. There is no such thing as an impact tool with a torque spec. Life behind the webbed beasts of pumps and valve bodies would be changed with that invention, but until then, a speed handle and torque wrench are the only options available.

Start from the center with a speed handle tug, and then finish in same pattern with torque wrench. After torquing, give the piece a nice rub and a pat on the pressure regulator. You're saying goodbye for a while.

## Final Thoughts

The transmission industry is changing drastically. Parts are becoming increasingly delicate and gears are stacking high. 15 solenoids and transmissions capable of nine different ratios are lingering on the streets and on their way to a bench near you. Scared? Don't be.

These essential rules from a past generation of rebuilding still hold true today and should be carved in stone for tomorrow. Everyone has the tools and the rules to be a successful transmission rebuilder... all you need to do is follow the steps.



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# Hope and Change: A New Technique for Selling Transmission Repairs



by Kit Lindsay,  
Lindsay Transmission Service

**T**his article began as a series of posts on ATRA's *What's Working* forum. The result is a new process that promises to sell more work for transmission shops.

And it's a great example of why you should be taking part in the *What's Working* forum, and attending the management program at this year's Expo. Because this is just one of many ideas being discussed that could change the way you do business forever.

Change. We've heard that word enough to last a lifetime. But the change we're hoping for isn't what many of us are experiencing in our transmission shops. The change many of us are seeing is more like change in our customers' pockets.

20 years ago the biggest obstacles I had to deal with were technical issues. Five years later all that changed; the tech issues took a back seat to getting all the cars and trucks we had to repair out the door! We were constantly buried with customers' cars and didn't have to work at all to sell repairs. Our biggest problem was getting quality parts in a timely manner.

Ten years ago that stopped being a problem as business slowed due to record car sales in 2000 and 2001. The phone hardly rang at all, and some days I would call my competition just to make sure my phone was working.

Then the economy started falling apart. There are differing opinions on how we got here and who's responsible, but it's created an expanding gap between those who have money and those who don't. The majority of our customers seem to be the ones who don't.

Today our biggest obstacle isn't technical and it isn't too much work to get done. It's a lack of people with both

**Then it dawned on me: I was doing all the work and giving away the information so that anyone could fix the vehicle!**



a genuine need and the willingness to pay for quality repairs. I'm seeing a lot of need; customers who are willing to loosen their grip on the funds are a different story. So I've been forced to apply a little change of my own.

For years my technique for selling work was to evaluate the vehicle, then provide a written estimate. I'd usually provide options such as a used unit or a remanufactured transmission so the customer could compare those options to the benefits of a custom rebuild.

Most customers were willing to spend a little more for the rebuild, since we would provide a long warranty. When sales started sagging I adjusted my warranty and that increased my sales slightly, but I was still losing work.

So I started working harder to provide better estimates, sometimes spending thirty minutes writing fantastic looking ROs, just knowing I was going to blow them away with my professionalism and quality. I still noticed many of those customers' cars in my competitor's lot.

Then it dawned on me: I was doing all the work and giving away the information so that anyone could fix the vehicle! All the customer had to do was show my paperwork to the other shop, and they could undercut me by \$50 and get the job.

No doubt about it; it was time to change the way I was doing business.

## A New Sales Technique

The next customer who came in got a totally different experience than any customer I've ever spoken with. This technique worked so well that I've been using it almost exclusively ever since. Here's how it goes:

After the usual chitchat and a test drive, instead of going nuts writing an estimate, I flat out ask the customer how much money he'd budgeted for a repair like this, and how much he thought it would cost to fix the problem.

Initially I was shocked at the numbers I heard; they're usually a small fraction of the real cost. I smile and acknowledge the fact that money's really tight these days, and let him know

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it's tight for me, too, and that I really understand.

I let him know that a transmission rebuild is actually much more expensive than he was expecting. If he needs a rebuild, there isn't any way I can do it for the amount he wants to spend. Then I sit silently for about three seconds, which is all it usually takes for the words to sink in. Then the customer asks, "What else can be done?" which opens the door.

I tell my customer that since money is so tight now, we're offering a *targeted repair*. If circumstances permit, we're willing to replace just the one or two parts that failed, as long as the customer understands the risk he's taking. He isn't getting a new transmission and the only thing we'll guarantee is that it won't leak. Many of us in the industry call this the "patch and pray."

The customer is usually only too happy to explore this option, so I grab a legal pad and explain that I'm going to make a list of all the essentials that I know he's going to need. I start with a gasket kit, a filter, and some fluid... I even pause to ask if he wants me to use his old fluid and filter over. I do this to let him feel like he's in control of the repair.

I may list a band if I feel that's the problem, and any other small items that might be needed. Frankly, it's usually a short list. Then I itemize the labor. I explain that it'll take the same amount of time to remove and replace the transmission, and then figure in the time inside the unit — usually about two hours less than a normal rebuild.

I add the cooler flush, sales tax, and total it up. It's still usually higher than he imagined, but much lower than the cost of a full rebuild.

Once I get him warm to that price, I ask him, "Suppose I have the transmission apart and find a worn part that should be replaced; should I replace it, or use it over and just stick to the estimate we have here?" Invariably the customer replies, "No, if it needs to be replaced, replace it."

So next I explain that there are certain parts that usually need to be replaced when we have one of these transmissions apart. I list those parts and write the price so he can see it.

Now we have a complete list of



everything the transmission should need to fix his particular problem. Of course, this latest price isn't that much lower than a rebuild would've been.

I remind the customer that his transmission has XXX,XXX miles on it. And even with a new band and fluid, it could easily break down on his way home, and then he'd be out all that money. Then I explain that just a few more parts would really extend the odds that it would last... and pretty soon I'm looking at a reasonable rebuild price and an understanding customer.

This technique worked twice yesterday, each time with a customer who swore he couldn't afford \$500. Each customer spent nearly \$3000, and both were very happy with the decision.

## Why It Works

I think this technique works so well because I show the customer that I'm trying to help, and that I'm genuinely trying to fix his car on the cheap. And as the discussion progresses, reasonable people start to see the value in fixing it right and gravitate toward that solution.

Another benefit is that the price builds slowly, by degrees, instead of dropping on their heads all at once, like a ton of bricks. It's a lot like the auction mentality: "It's only a few bucks more..." But even more than that, each level offers the customer a specific benefit beyond the previous one, so he can justify the additional cost in his mind.

Have I done any patch-and-pray repairs? Sure. But they really were taking the car to trade it in, and they understood the risk they were assum-

ing. Otherwise, nearly everyone else has chosen the better repair, once I explained it in these terms. We still sometimes have to make payment arrangements, but usually two payments and the bill is paid in full and the customer drives away with his transportation problem solved.

Is this a bait-and-switch technique? No, because the customer isn't locked into anything. At any time during the sales pitch, the customer has the right to say "No thanks," and walk out the door without paying a dime. This is simply a way to get the customer more involved with his repair, and allow him to see what has to be done, item by item, to get his car back on the road.

He decides for himself that he needs more than just the minimum repair. Once he acknowledges that, I simply ask, "If we could somehow find the money for the better job, wouldn't you want that?" They all agree. They sell themselves after they see the benefit. And since it's all done by hand on a legal pad, it gives the look of a down-and-dirty, basic, cheap-as-we-can-do-it repair. No flashy graphics, no disclaimers. Just black ink on yellow paper.

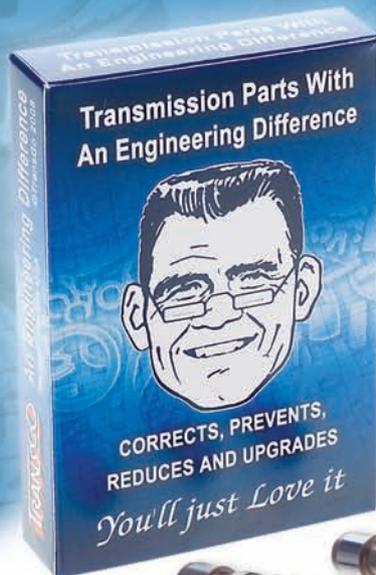
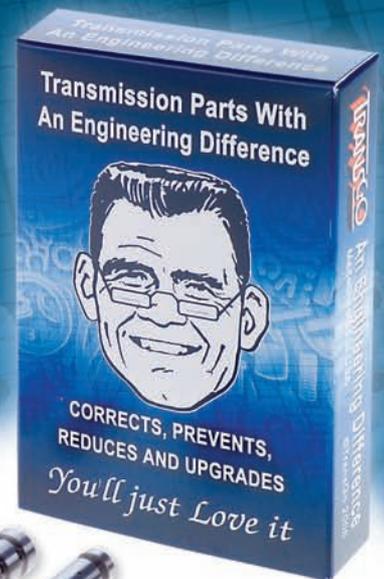
Change. Over the years we've had to make a lot of them in our business. Every issue of *GEARS* is filled with changes to the technical and management aspects of this industry. So it isn't all that surprising that we might have to change the way we sell repair jobs to our customers. The trick isn't to fight the change; the trick is to discover the changes that work, and take advantage of them.



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# New Tires for a Clown Car



by Thom Tschetter  
Director of Marketing  
Certified Transmission

Recently, I purchased a new set of tires for my car. The old ones weren't totally worn out, but because I don't drive a lot of miles, they were becoming dated. Plus now that I'm 60, I'm always scuffing the sidewalls by running up against the curb... I'm just kidding about that last part, but the day is approaching all too quickly.

Anyhow, the minute I got started down the road with my new tires, I noticed my car was running like "new" again. It was quieter, handled better, and rode smoother... what a difference! I had a whole new attitude toward my car. It was even better than the way it runs after I have it washed. I've always wondered why anyone would spend money on a tune-up when a car wash will do the trick.

By now you're most likely wondering what this has to do with business and if not, you must be one of my regular readers, and you know that there will be some crazy connection. Well, here it is: In many ways, people are like tires. Let's look at some of the similarities.

People, just like tires, last longer and perform better if they're well cared for... maintaining proper alignment, balance and pressure are essential to maximizing overall performance. Also, just like mismatched tires can cause erratic performance characteristics, so can mismatched players on your team.

Alignment is achieved with a mission statement. The company's mission statement should clearly state the company's overriding purpose for existing. It should at least answer these questions:

- What is our purpose; why do we do what we do?

- Who are the beneficiaries of us accomplishing our mission? Include customers, employees, owners, suppliers, and the community itself.
- How is the value of the benefits we provide measured?

The mission statement is then used as an alignment tool to guide all activities of the business.

Balance assures a smoother ride for your car and for your business. When your team is balanced in terms of talent, guided by predetermined systems and procedures, your business will run smoother, too. When your employees and you have balance in your lives between work, recreation and family, the resulting positive energy flows through, creating a more positive culture and common value system within your business.

Just like tires, people require the right amount of pressure for ideal performance. Too much pressure causes stress, leading to negative results like fatigue, wearing out, tension, and even blowing up. Too little pressure results in listlessness, mediocrity, wandering, inattentiveness, loss of interest, and even burnout. In each case you get unmet expectations and underperformance.

The very idea of running a set of mismatched tires causes me to picture the clown car at the circus or in a parade. The car alone appears to be totally whacky and dysfunctional, but the antics of the clowns add even more to the vision.

Often we're so close to our businesses that we can't even see the wackiness and how dysfunctional we are as

a team. We're running a "clown car" business and don't even know it. The worst part is that while we might not see it, our customers, suppliers, employees and even our competition does. Right now, as you read this, you're probably thinking of one or more of your competitors that fits this description. The joke is that they're likely thinking the same thing about you.

The purpose of this article isn't to make you feel bad, and hopefully this doesn't apply to you, but it's a call to action. In these challenging times, you need to at least check the alignment, balance and pressure condition of your business. Also make sure you have a team that is matched to the image you want to project for your business. Taking corrective action will give you a whole new attitude.

There are many resources available to help you do an inside-out and outside-in evaluation of your business. Often these services are provided at no charge by organizations like SCORE. You can find them on the internet or check with your local Business Development Office, a nearby college, or Chamber of Commerce for referrals to organizations and individuals that can help.

By the way, if you want a little coaching on this or anything related to sales and marketing, feel free to send me an email or give me a call. My email is [Thom@CertifiedTransmission.com](mailto:Thom@CertifiedTransmission.com) and my phone number is 800-544-7520 ext 173.



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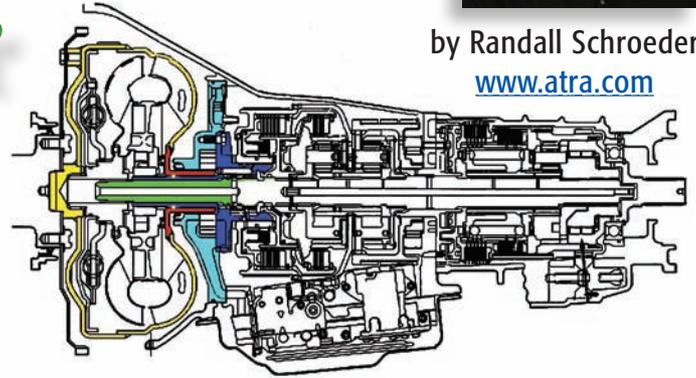
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by Randall Schroeder  
[www.atra.com](http://www.atra.com)

# 48RE Torque Converters: An Update for Longer Life



**O**ften in this industry, changes happen to improve a product. As doctors, we need to know whether there's any way to get around the cost of these changes and whether we can reduce patient costs by using earlier production parts.

The problem when thinking like this is often that the reason for these changes is overlooked to save a few dollars. As technicians, we're faced with what I'm going to call the big W's of the RE-series of Chrysler transmissions, specifically the 48RE torque converter changes that have evolved around lockup clutch designs.

These W's are:

- When — When did changes happen?
- Why — Why were these changes made?
- Which — Which parts were updated?
- Where — Where am I going to have to look to identify these new parts, to make sure I have the correct part the first time?
- What — What can I do when changing parts to increase durability?

Almost daily on the ATRA HotLine I'm asked, "Can I use the earlier 46/47RE torque converter with this 48RE transmission?"

We've heard everything from, "My parts supplier doesn't have the replacement part," to, "the cost is so much higher and I want to save money."

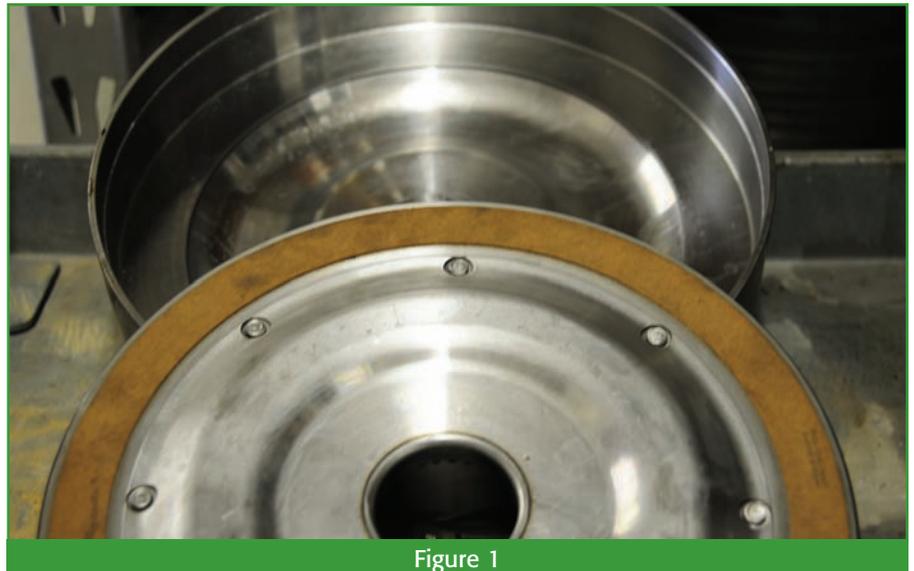


Figure 1

Both are valid concerns when purchasing replacement parts. But remember, your name is on that repair. And the quality of your work determines your reputation. Are you going to let your reputation depend on whether your supplier has a part in stock?

If your aftermarket source doesn't have the updated product, contact the dealer; they'll have it. I personally have never had an issue getting parts from my supplier when I needed them, so I almost have to wonder whether the first statement is true.

Cost is a different issue; I can understand why they're asking that question. But there's a real reason for going with the updated parts.

These late model 48RE trans-

missions are faced with some serious horsepower and turning torque. Let's face it: there's a lot of unused horsepower that can be accessed with aftermarket performance enhancers on the market today.

With that in mind, let's look at the facts: Converter clutch durability has been an issue from day one on these units. The extra horsepower places even greater load on these units. And today, to save fuel and put less wear and tear on the engine, lockup comes on sooner and more often.

When the computer signals for lockup, oil that was holding the torque converter clutch lining away from the cover is released through the input shaft and exhausted at the switch valve. This

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Figure 2

allows the pressure inside the converter to force the lockup clutch against the cover.

This internal converter pressure, in the original 42 through 47RE converters (figure 1), could be compromised with a leak between the converter hub and stator support assembly, allowing oil to be used/recycled through the pump gears. This leak reduced the pressure that was holding the clutch lining against the cover. This can, and often does, create a slip in the clutch lining, which eventually overheats and burns up the clutch.

The aftermarket came up with an excellent fix by going to what is called the *triple clutch lining* — two extra clutch surfaces to increase the holding area (figure 2). This makes the clutch more durable and improves clutch holding strength. Face it, the triple disk provides three times the holding area for the same amount of pressure inside the converter.

The triple clutch allowed for a greater holding force based on clutch lining surface area, even if we've lost some of the holding pressure due to leaks inside the converter. This durability upgrade is based on surface area alone.

Whenever there's a burnt clutch or band in any transmission, there are realistically only two likely causes (even though there are lots of variables within those two causes): Inadequate holding capacity or dragging.

When dealing with burnt converter clutch lining, these are the issues:

- Not enough pressure to sustain the load area, caused by leaks or excessive horsepower. The triple clutch provides more holding surface area with the same internal pressures. This creates a better chance of the lining holding, even under reduced pressures.
- The component is dragging when it's supposed to be released. This causes the clutch material to burn.

In the case of the earlier, single-disk OE converter, this low pressure prompted the upgrade to more surface area on the triple clutch disk (area #1). This low pressure issue needed to be



Figure 3A



Figure 3B

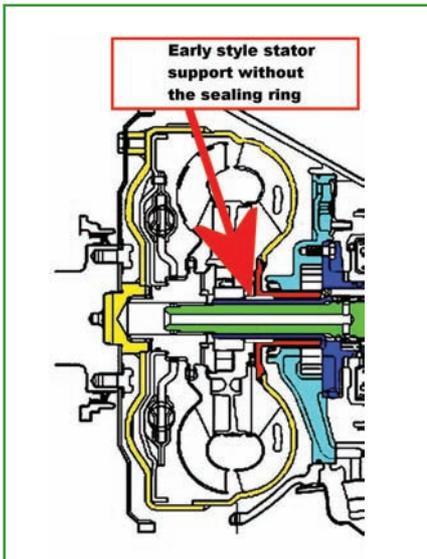


Figure 4

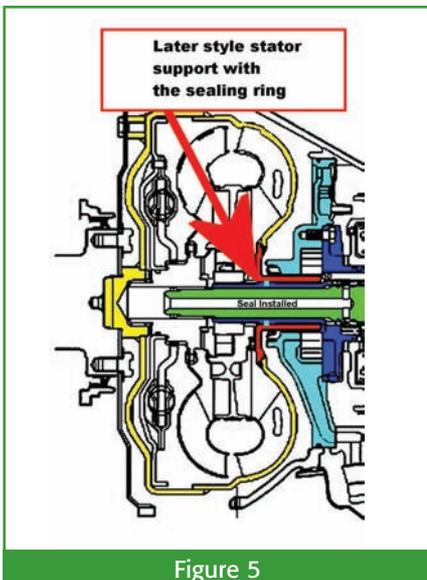


Figure 5

addressed within the stock OE single-disk unit, so when the 48RE series appeared around 2003 (when), provisions were made (why) to keep that pressure inside the torque converter.

To do this, the torque converter hub was redesigned (where), eliminating the lower step on the inside ID of the hub (figures 3a and 3b), allowing for a new seal ring on the stator support. This newer design helps keep pressure inside the torque converter when it goes into lockup.

This is where problems arose in the rebuild shop. Early on, when this change first showed up, many technicians weren't aware of the change to the torque converter hub ID (and some still don't know what was changed). The result was early-designed torque converters were installed with the improper ID surface on the hub.



Figure 6



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Figure 7

In doing this, the updated seal ring, installed on the stator support assembly, had nothing to seal against. This would cause the seal ring to blow out of the ring groove (figure 4) and end up where it could cause the entire transmission to burn down (inside the oil cooler, preventing lube flow).

Important: Always ID the replacement part to assure the proper fit.

This was a great update that helped

keep pressure inside the torque converter (figure 5) for a positive converter clutch engagement. So, referring back to the original question that I get on the tech line: Can you use earlier 46/47RE parts on the 48RE transmission (early-style torque converter and early style stator support assembly; figure 6)? Because of the advantages of the upgrades, no, we don't recommend using the early parts on later unit when rebuilding the transmission.

This first question is sometimes followed up by: "I'm using the after-market triple clutch converter, so it shouldn't make any difference."

Well, if the question is "can it work?" then the answer is yes. But will it work as good as the updated design in keeping that pressure inside the converter? That answer would have to be no; keeping the pressure inside the converter is the update with the seal ring (figure 7). Early parts didn't have that provision, so holding strength will be reduced with lower pressure.

Sometimes we hear this follow-up comment: "My supplier tells me just to leave the seal ring off the stator support

(late model seal ring support) and the early converter hub will work."

This was a common suggestion before the late style hub could be purchased and installed by the converter rebuilder. Early on (mid-2003), before the converter rebuilders were able to get the proper converter hub, you could do this. It'll work, but not the way it's supposed to with the seal ring.

All the converter suppliers quickly caught the differences in the converter hub design, so the "I can't get the converter from the supplier" objections about proper product have been gone for many years now. Most converter rebuilders offer the triple clutch lining and have the correct converter hub to take full advantage of those advances, not only with the 46/47RE early units but also with the later 48RE.

Important: If you use the updated triple clutch, the engagement into lockup is noticeably more aggressive. Modifications that we made to earlier units can cause very aggressive TCC engagement. This condition is now a built-in complaint that can be caused with the upgrade. You may have heard:

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Sound familiar? The feel of TCC engagement is controlled by the release oil exhausting at the switch valve. The more area in the exhaust passage at the switch valve, the faster it allows the oil to flow by, so the firmer the engagement.

Firm engagement doesn’t do anything if there isn’t enough pressure to sustain the load due to leaks in the system. My recommendation is to build this transmission as designed. If there’s a seal ring on the stator support assembly, use it. Just make sure the torque converter is built with the proper hub that allows that seal ring to do its job.

The triple disk converter is an excellent idea in the 48RE series, as long as the engagement isn’t too aggressive causing customer complaints.

The drawback to aggressive engagement (especially if there’s a performance kit installed with higher working line pressure) is that the stock input shaft can break (figure 8) because of the positive engagement. We recommend you upgrade to a billet input shaft to help prevent it from breaking

(remember the racer saying “you play; you pay”). When the input shaft breaks, typically it will also break the stator support, filling the unit with metal.

A couple years back I wrote a three-part article revolving around lockup issues. This was to help in understanding the mechanical, electrical, and hydraulic functions that allow the TCC to work. We hinted on the new design but I think, looking back, I must not have been clear on the positive results of keeping that pressure inside the converter.

Along with the updates for keeping the pressure inside the converter were pump and valve body updates for high pressure advances, so don’t mix up



Figure 8

pump parts such as gears or valve body parts; they were also redesigned with these changes for a reason.

So until next time, keep those transmissions in good shifting health!

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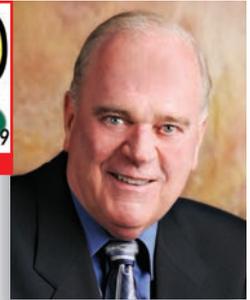
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# Introducing Your Team



by Paul Mathewson

**Y**our Operations Manual must provide a high profile section about who works at your shop and what each person does. As you think about each individual, remember that your shop is different from every other shop because every human being is unique, and your shop is a collection of unique persons.

As a former franchisee, I've seen company organizational charts with standard job classification titles like:

- Manager
- Outside Sales Rep
- Office Manager
- Lead Rebuilder
- Rebuilder
- Swing Man
- Installer
- Service Personnel

## Reality Check

What you need to write about are answers to the questions found in Section 8 of your notebook. It reads, "This is who works here and here's what I expect each of them to do."

By fully answering these two questions you'll provide your successor with a significant profile of each of your team members. Even more, you'll explain the dynamics of workflow, job responsibility, accountability and safeguards. So open your notebook and get ready to write.

A real-world transmission shop starts with an owner. Are you the owner? If so, explain how you got there, what your credentials are, what credentials you don't have, and where you fit in the larger scheme of things in terms of your role in the business.

Some owners are investors who have little or no active role in the daily business; others are the principal tech-



anical brains of the business and are usually found behind a rebuilding bench or with their heads buried in tech manuals; still others are more like the crew chief of a NASCAR team, sitting high on a pit box like Chad Knaus giving direction to Jimmie Johnson and everyone else on the team.

Understand this: *As you define your role as owner, you're defining the hole that will exist when you decide to leave.* The purpose of this project is to write an Operations Manual that will allow your successor to carry on where you left off.

Now consider this: If you, the owner, are also the sole rebuilder in your shop, your leaving will create inevitable repercussions for your successor once you're gone. In the previous example, the number 48 NASCAR team may continue even if Rick Hendrick, Jimmie Johnson, or Chad Knaus should be replaced. But the adjustments would be significant.

Here's someone else that you'll find in a real-world transmission shop: the General Manager, better known by all who work there as "the boss." Often this is the owner. The boss is where the buck stops. It's also the person who

directs the entire operation.

In smaller shops the boss answers the phone, receives potential customers, does initial road tests, handles customer needs, obtains approvals for repairs, directs the production staff, completes paperwork, finishes delivery to vehicle owners, and settles complaints.

So, in a small shop, the boss is the intermediary between the customer and the rest of the staff. Is this how it works in your shop? If so, in your notebook, section 8, write down the name

of the boss and clarify what he or she does.

Your shop may look like the one described above... it may be a little different... it may *very* different. So now it's your turn to explain who the boss is and what the boss's responsibilities are (and aren't). There's no one-size-fits-all template to refer to here.

If the boss is the lead technician, then it's possible your shop employs a front man (or woman) who looks after the customer part of the business. Some shops include a shop foreman who oversees production activities in the shop. Write a few paragraphs here about the informal, probably unwritten, organizational chart that you use at your place of business.

## Up Close and Personal

Okay, now that you've written an overview of your organization, let's get into the people specifics. For each person there are two subjects to be covered:

- A. Character description *of* the person
- B. Job description *for* the person

As you can tell, this is going to be a very up-close and personal review

of everyone who works in your shop. You're about to introduce each employee to your successor, including some confidential info that's relevant to the employee's performance at your shop.

This is no time for careless characterizations; everything you include must be factual, honest and provide a true picture of the employee. Hopefully your assessment will be one that the employee himself would agree with, while preparing your successor to deal with the staff efficiently and effectively. You don't want your successor to come back to you later with, "why didn't you warn me about..."

**CAUTION:** Always check the laws covering your area before writing any personal descriptions of your employees. Many of these issues are covered by legal statute; including personal details in an operations manual may violate your employees' rights, and put you at risk of legal action.

Clearly this character description refers to who's working there now, so this whole section of your Operations Manual will need updating when employee changes take place.

The second category of the *job description* is more objective and more stable in terms of who's fulfilling that job. At the same time, it's very common for the job description to be modified over time, depending on circumstances.

For example, a *new* R&R tech may be required to work under close scrutiny of the rebuild; a long-term R&R tech may be free to work completely on his own. Such factors need to be explained. Otherwise a job description is a written explanation of "what I expect each of them to do" (Section 8, Op Manual).

Let me show you what this means. I've selected an employee from my past named Bob (not his real name, but a real person). Here's how Bob would have appeared in my Operations Manual.

## Introducing Bob the Builder

Bob is our rebuild. Bob moved to our town 15 years ago to work in another transmission shop. He worked there for 10 years (he doesn't like to change jobs). He left because he couldn't get along with the owner's son, who was

learning to be a rebuild.

Bob came to us because we're a small shop where he could be the chief technical brains (he doesn't like being challenged). Bob is very smart. He claims to have a memory "like a steel trap," which keeps him from repeating mistakes. He claims to have never had a comeback; to be honest, no one challenges him on that.

Bob works on his own, says little to others, resents having to talk to customers, is dependable, and learns quickly.

Bob has no bad habits that impede his work. He's honest. He expects to be paid at the top level for people in his trade, which he is. We can't count on Bob to train R&R techs to become swingmen. Bob has a few rebuild friends who he calls for tech help occasionally.

The description above is a verbal picture of "Bob the Builder." It is a frank description that will prepare the next owner for who he's going to work with. This is most important because, as you know, rebuilds have their own way of doing things and don't want to be told how to rebuild.

That said, you still need to have minimum standards in place for a variety of reasons, so we complete the introduction of Bob with this Job Description:

## Job Description for Bob the Builder

1. Verify problems by road test/scan before transmission removal
2. Receive removed unit on teardown bench; fluid already drained
3. Tear down far enough to establish cause of failure and needed repairs
4. Provide the Manager with a list of parts needed
5. Continue to dismantle, including valve body if necessary
6. Wash case, covers and pan in hot tank
7. Clean parts with clean solvent and blow dry
8. Renew every gasket, seal, worn washer, worn bushing
9. Repack all clutch drums with new friction plates
10. Renew all non-static apply bands, all questionable sprags and roller clutches

11. Renew any hard parts and electronic components as per agreed repairs
12. Install any updates agreed to by customer
13. Reassemble using clearance specs from unit repair manual
14. Perform run up on hoist after installation and final road test

This job description is an example for you to use if it fits your requirements. Your rebuild will be a very different person from Bob the Builder (I hope so!), and your Bob will likely work somewhat differently from my Bob. What's important is that you write down your expectations for each team member.

## Final Touches

The next step is to identify other members of your team with the same two-part explanation (personal characteristics then job details). The personal descriptions are for *your eyes only*; later they'll be for the eyes of your successor. The job descriptions are for everyone; they need to be written clearly and agreed to by each employee.

In a later article we'll talk about the workflow through your shop. Section 7 in your notebook reads: "Here's how a typical trans job gets processed through our shop." That's where we'll show how the job flows between the people who work there. For now, we're getting to know them and the kind of things they do at your shop.

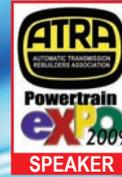
If you want to talk to me about your Operations Manual project, please call 906 440 4600 or email me at: [m&mtransmission@shaw.ca](mailto:m&mtransmission@shaw.ca)

PS — Written job descriptions are the subject of another project: the *Employee Handbook*. If you want to minimize disputes and court challenges, write out your expectations for each employee and your commitments to each employee. Make sure any new employee receives a copy and agrees to the contents.



# 6T70/6T75; The Future is Now

## Part 3



by Steve Garrett  
[www.atra.com](http://www.atra.com)

**W**hen we left off in the last issue of *GEARS*, we were discussing the 6T70/6T75's inputs and how to diagnose them. In this issue we'll look at the outputs and some diagnostic strategies you can use to help isolate problems with the TEHCM (TCM) and its solenoids.

### Outputs

The 6T70/6T75 transaxles use two on/off solenoids, and six PWM VBS-style solenoids (figure 1). The solenoids control which shift occurs *and* how aggressive the shift will be.

Shift solenoid and VBS operation are controlled by the TEHCM (TCM). The TCM regulates the feed voltage to the PWM solenoids to a value between 8.3–9.3 volts. The TCM then regulates the current flow through the solenoids.

The shift solenoids are on/off design, with the TCM controlling the power for the solenoid. The pressure control solenoids are high-side PWM controlled. The TCM is protected against damage from excess current or temperature.

Bosch refers to the solenoids based on their state: Normally Low (NL) or Normally High (NH). Normally High is used to describe a solenoid that allows pressure to travel to the clutch when the solenoid is turned off. Normally Low describes a solenoid that prevents pres-

GEAR	SS1	SS2	PCS 2 (NH)	PCS3 (NH)	PCS4 (NL)	PCS5 (NL)
PARK	ON	ON	OFF	ON	OFF	OFF
REVERSE	ON	OFF	ON	ON	OFF	OFF
NEUTRAL	ON	ON	OFF	ON	OFF	OFF
1 <sup>ST</sup> ENG BRK	ON	ON	OFF	ON	OFF	ON
1 <sup>ST</sup>	OFF	ON	OFF	OFF	OFF	ON
2 <sup>ND</sup>	OFF	ON	OFF	OFF	ON	ON
3 <sup>RD</sup>	OFF	ON	ON	OFF	OFF	ON
4 <sup>TH</sup>	OFF	ON	OFF	ON	OFF	ON
5 <sup>TH</sup>	OFF	ON	ON	ON	OFF	OFF
6 <sup>TH</sup>	OFF	ON	OFF	ON	ON	OFF

CHART 1

sure from getting to a clutch when the solenoid is turned off.

The solenoids are protected by the filter plate. The filter plate is housed between the valve body and the control solenoid valve assembly (TEHCM), and should be replaced anytime the valve body or control solenoid valve assembly (TEHCM) is replaced or unbolted from each other.

Shift Solenoid Commanded Position

See Chart 1.

A few points to remember:

- The status of the solenoids as displayed by the scan tool (on/off) refers to their condition hydraulically; not electrically as with other transmissions.
- It's normal for the shift solenoids

to make a buzzing noise for up to 10 seconds after you've turned the key off.

- If the control valve body assembly is removed from the case the support seal located in the case must also be replaced.
- Solenoid resistance and current flow can be measured with the TEHCM removed from the vehicle. While this isn't an approved GM test procedure, it may help you diagnose a solenoid electrical problem.

Shift solenoid resistance 20-40 ohms; current flow 0.3-0.6 amps.

PWM VBS solenoid resistance 4-7 ohms, current flow 1.7-3.0 amps.

These values will vary with temperature (figure 2a,b,c,d).

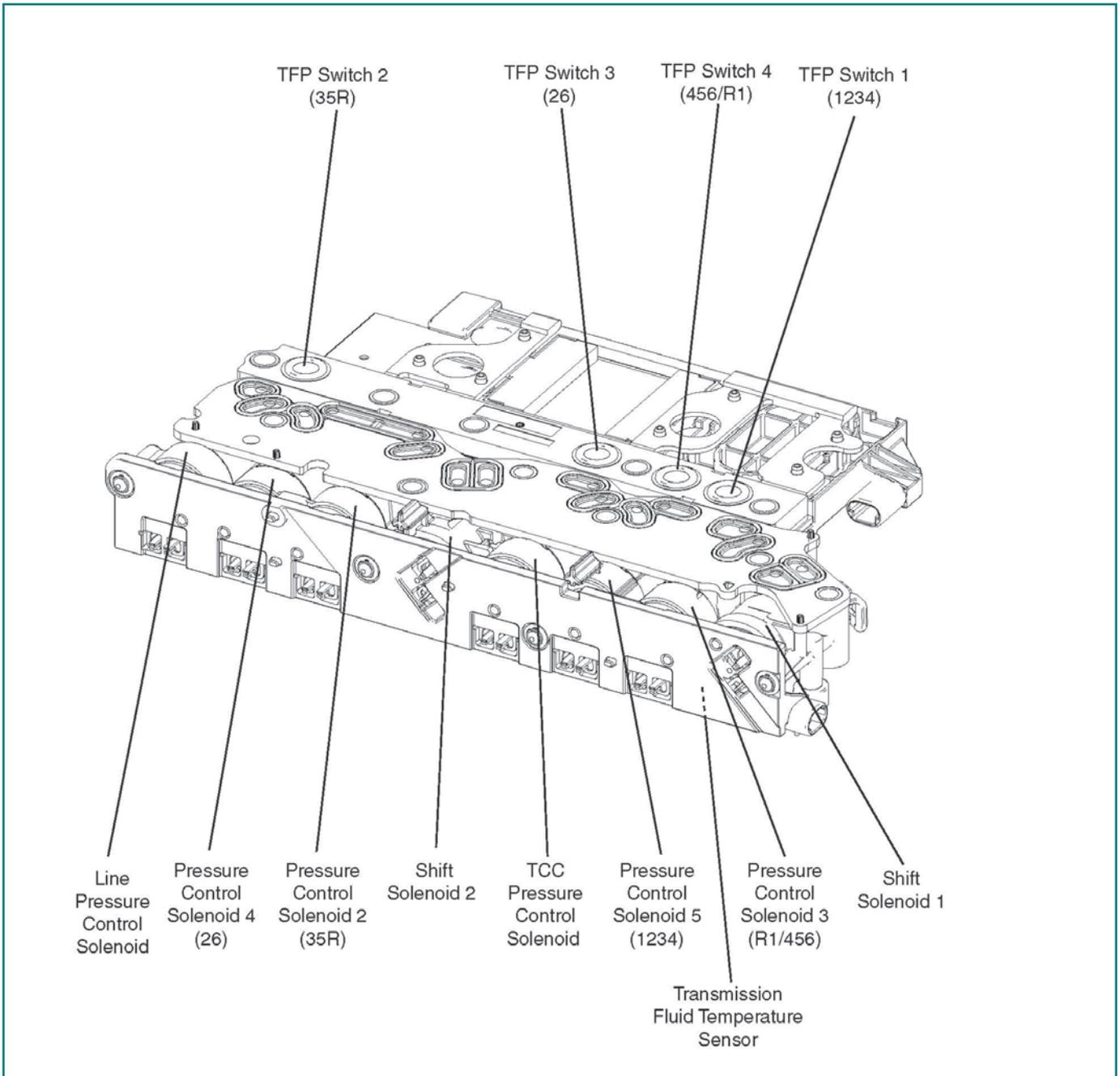


Figure 1

## Line Pressure Testing

Like other transmissions, 6T70 and 6T75s have a line pressure port, so you can test line pressure. Like other GM electronically-controlled units, you can measure the line pressure with a gauge and control it with a scan tool. One difference compared to many other GM units is the scan tool will provide the pressure control solenoid command in KPA or PSI rather than amperage.

To conduct a line pressure test:

- Install a gauge in the line pressure test port (figure 3).
- With your scan tool, command

Commanded Pressure Change kPa	Actual Pressure kPa	Actual Pressure PSI
NONE	345-550	50-80
200	690-900	100-130
400	1100-1310	160-190
600	1520-1725	220-250
800	1860-2070	270-300
1000	1860-2070	270-300
1200	1860-2070	270-300

CHART 2

the desired pressure change.

- Compare your commanded

pressure change to the actual pressure shown on your gauge. (See Chart 2.)

## Solenoid Cleaning Process

An automated process is available that aids in cleaning debris from the solenoid assembly. Your scan tool will instruct the TCM (TEHCM) to cycle the solenoids while the system is pressurized to clean the solenoids.

The transmission doesn't need to be disassembled to perform the cleaning process. Simply follow the instructions on the scan tool to activate the cleaning program.

Always complete the cleaning process before attempting to diagnose the transmission with the DT-47825-1 tools as described in the next section. If the cleaning process doesn't correct the condition you're working on, use a DT-47825-1 to diagnose the condition.

NOTE: GM powertrain engineers have determined that the solenoid cleaning effectiveness is very high. They recommend that you perform the cleaning process any time you have a solenoid performance-related DTC prior to replacing the TEHCM (TCM).

## Diagnostics

Like other GM transmissions, diagnosis is designed around using a quality scan tool. With the 6T70/6T75, the need to access scan data is critical. Unlike other GM transmissions you're accustomed to, the 6T70/6T75 internal electrical components aren't hardwired to the rest of the vehicle via the transmission harness. This means that the diagnostic process has changed considerably.

Diagnosis is divided into two categories: scan diagnostics and test plate/air check diagnostics. A new diagnostic process was developed to help you determine if the problem is related to the TEHCM (TCM) or the valve body. If the TEHCM passes the pressure test, you'll need to replace the valve body.

Solenoid and valve body diagnosis requires these tools:

- A quality scan tool capable of communicating and commanding the TCM and its solenoids.
- Kent Moore tool number DT 47825-1 solenoid test plate and jumper harness DT47825-20 (or equivalent).



Figure 2A

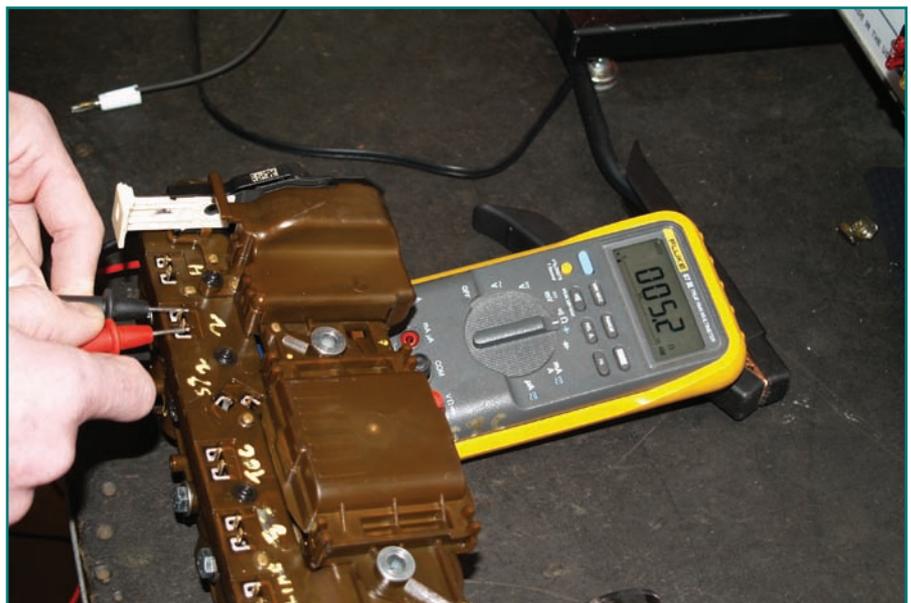


Figure 2B



Figure 2C



Figure 2D

To test the TEHCM and solenoids:

- Remove the control solenoid valve assembly (TEHCM) from the transaxle.
- Install tool DT 47821-1 onto the control solenoid valve assembly (TEHCM); torque the bolts to 5 Nm; 44 lb-in.
- Connect the DT47825 harness to the TEHCM and the transaxle harness.
- Apply regulated shop air (90-100 PSI) to the test plate.
- Connect the scan tool to the vehicle DLC (figure 4).

NOTE: Drain excess fluid from the TEHCM prior to conducting the test. Cover the TEHCM or you will get very wet!

- Using your scan tool, command the solenoid on and off.

You should see air pressure on the gauge and then it should exhaust as the solenoid cycles. If the solenoid is faulty, the gauge pressure won't change as you cycle the solenoid. If you identify a faulty solenoid, replace the complete TEHCM.

If the solenoid checks okay, install the gauge on another solenoid port and command that solenoid on and off with the scan tool to repeat the process. (See Chart 3, and Figure 4.)

When conducting the test, the solenoid pressure shown on the gauge should change as you cycle the solenoid with your scan tool. If the solenoid is faulty, the gauge pressure won't change as you cycle the solenoid. If

you identify a faulty solenoid, replace the complete TEHCM.

The TCM (TEHCM) will normally cycle several of the solenoids on and off to help keep the solenoids and valves free of debris. So this cleaning function (dither) may cause the

gauge to fluctuate when the TCM is cleaning the solenoid you're testing.

### Adaptive Learning

The 6T70/75s are fully equipped with several adaptive learning strategies. As with some other GM 6-speed applications, you'll need to erase the adaptive values and perform a Fast Learn prior to operating the vehicle. Clear the adapts and perform a fast

learn procedure if any of these conditions occur:

- You've performed internal transaxle repairs or installed a rebuilt transaxle.
- You replaced the valve body.
- You replaced the control solenoid valve assembly (TEHCM).
- You recalibrated the TCM.
- You've performed internal repairs that could affect shift quality.

Fast learn isn't required if you install a GM new or rebuilt 6T70/6T75. GM fast learns their transmissions before shipping them from the plant.

To perform a fast learn:

- Use a scan tool capable of performing the fast learn procedure.
- Set the park brake.
- TFT 158°-230°F (70°-110°C).
- With your foot on the brake, move the selector in and out of gear three times.
- Use your scan tool to clear any adaptive data that might be stored in the TEHCM.
- Select the fast learn process

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from the scan tool menu.

- Place your foot on the brake pedal.
- Place the transmission in drive and hold the vehicle stationary; the TCM will individually apply the clutches and calculate the clutch volume.
- Place the transmission in reverse with the vehicle stationary; the TCM will individually apply the clutches and calculate the clutch volume.
- Shut the engine off for at least 30 seconds.
- Open and close the door to allow “RAP” to expire or false DTCs may set.

After at least 30 seconds, you can restart the engine and turn your scan tool off. The process is complete.

The fast learn procedure won't run if:

- DTCs are set.
- TFT isn't between 158°-230°F (70°-110°C).
- The brake switch isn't working.
- TP is 0% but engine RPM increases during the test.
- P/N switch is adjusted improperly or isn't working correctly.
- Line pressure control system isn't working properly.

That's all for now. In the next issue we'll take a look at the information available on your scan tool to help you diagnose these units. Until then remember, “Life is like riding a bicycle; you don't fall off until you stop pedaling.”

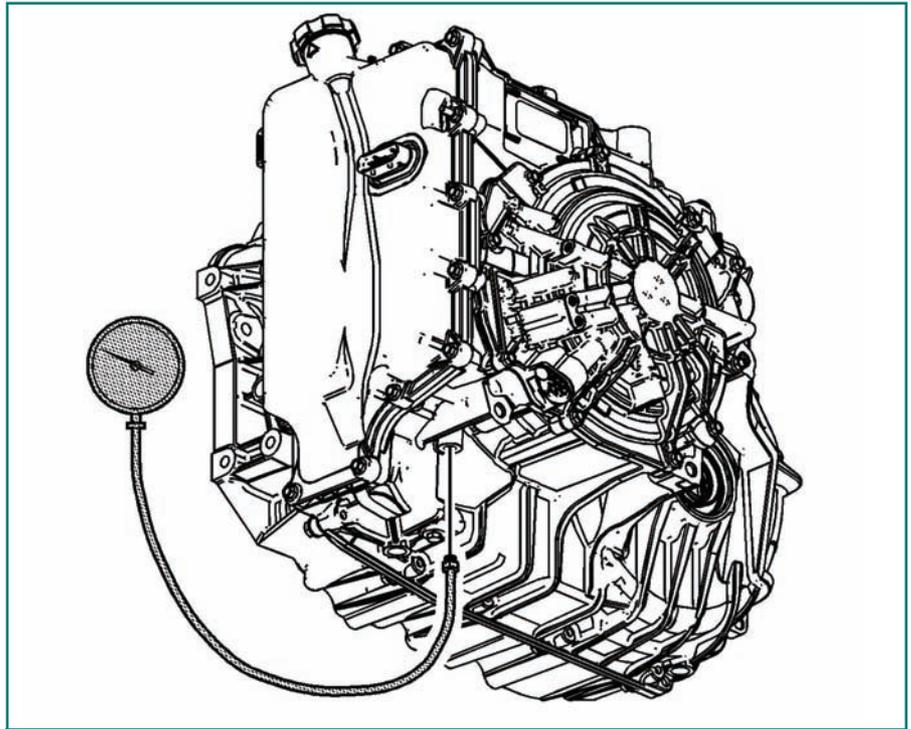


Figure 3

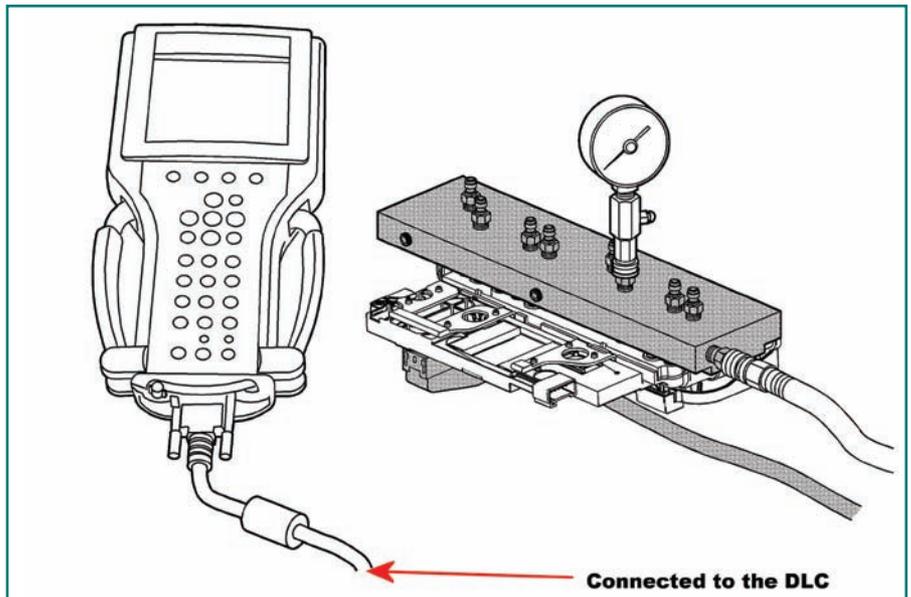
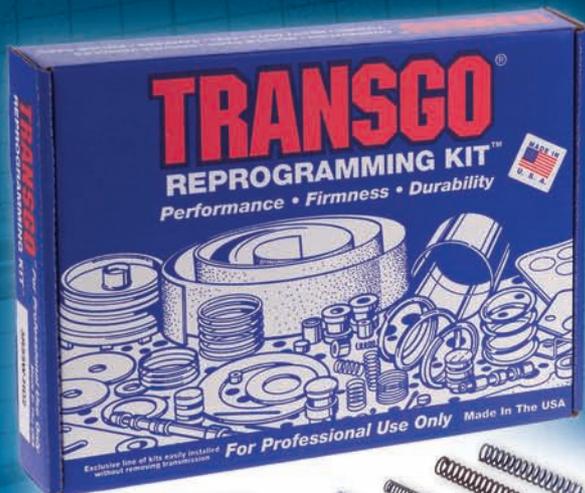


Figure 4

Solenoid	Test Plate Port	Key On, Engine Off (KOEO) Normal State	Commanded State	
Line PC Solenoid 1	G	Full Flow	On: 68-103 kPa (10-15 psi) per commanded amp	
PC Solenoid 2	C	No Flow	On - Full Flow	Off - No Flow
PC Solenoid 3	A	Full Flow	On - Full Flow	Off - No Flow
PC Solenoid 4	B	No Flow	On - Full Flow	Off - No Flow
PC Solenoid 5	F	No Flow	On - Full Flow	Off - No Flow
Shift Solenoid 1	H	Full Flow	Off - No Flow	On - Full Flow
Shift Solenoid 2	D	No Flow	Off - No Flow	On - Full Flow
TCC PC Solenoid	E	No Flow	On - Full Flow	Off - No Flow

CHART 3

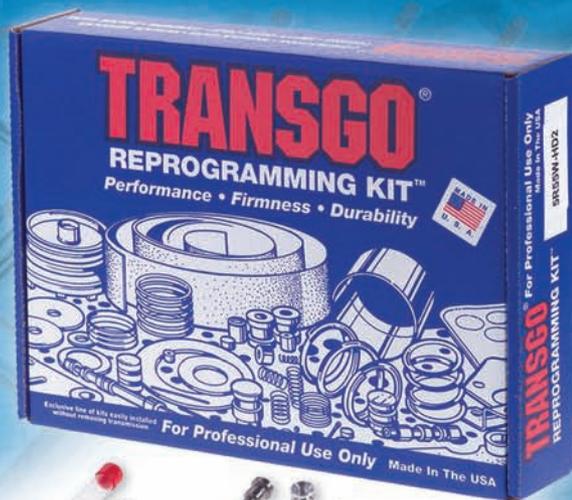


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# A Visit to Minneapolis



by Dennis Madden  
[www.atra.com](http://www.atra.com)

It's been a while since my last shop visits; this time I had a chance to drop in at a few shops in Minneapolis. Generally, I try to tie some shop visits in whenever I do a seminar, and I was in Minneapolis to present some of the *What's Working* information we've gathered over the past year or so. It was a Midwest Chapter function and I was happy to be there.

I've been to the Minneapolis area before, so this time I wanted to find a route that would take me to shops I hadn't visited in the past, and get to as many shops as possible in the short time I had there.

One of the shops I wanted to visit was the Kennedy Transmission store in Plymouth, owned by Mike Ekstrom. Mike bought the Plymouth store in December of 2000. But what's interesting about Mike is that since 1993 he's also served as the general manager of the Kennedy franchise of 17 stores.

Every so often I'll get a call from Mike with an idea for a new ATRA project. Last summer when gas prices were over \$4 per gallon, I got a call from Mike about an idea for a flyer that talked about cost comparisons (on a per mile basis) for fixing a transmission vs buying a new car that got better gas mileage. He later faxed over a sample of the idea. Funny thing, the following week I got a call from two other members on the same topic. That idea turned into the Cost Calculator you can find on ATRA Member web sites.

Unfortunately, Mike was out of the office doing general manager stuff when I visited, but his store manager, Josh Gray, showed me around the shop



Kennedy Transmissions - Plymouth:  
L to R - Randy Gorsenger and Josh Norris



Plymouth Manager - Josh Gray

and introduced me to the guys. It's a nice shop, which was no great surprise. The waiting area, rebuild area and

service bays are all top notch. I was disappointed to have missed Mike, but I knew I'd see him that evening at the



L to R - Builders Steve Bjerke and Randy Gorsenger



General Manager of Kennedy franchise and owner of the Plymouth store - Mike Ekstrom

Chapter meeting.

My next stop was another Kennedy store, this time in Golden Valley, owned by Darwin Upton. Darwin is a regular “poster” on ATRA’s *What’s Working* forum, as well as the *TRNW* forum. I’ve chatted with him on line numerous times so I wanted to make sure I stopped by his shop.

Darwin was working behind the counter when I arrived and it looked like he was pretty busy. In fact, during our conversation he remarked that business was up 81% over the same period last year — from the first of the year through March. This was welcome news since the bad economy has hurt so many shops. But we also learned from our most recent *What’s Working* study that a lot of consumers had postponed needed repairs during the last part of 2008 and the beginning of 2009, so we knew there was a glut of broken cars out there that would have to get fixed sooner or later.

I also noticed that Darwin offered more than just transmission repair. In fact, I was a bit puzzled when I noticed a tire display in his waiting area. Turns out they sell tires, too. They don’t advertise tire sales, but when they have a customer with other service needs — including tires — they try to take care of those needs, too, which prevents the customer from having to go elsewhere.

The tire service was kind of interesting: When they sell a tire, a mobile tire service truck stops by to mount and balance the tire, right out in the parking lot.

As for Darwin, he’s a veteran of 37 years (and he still has hair!), 26 of



Kennedy Transmissions - Golden Valley (It wasn't snowing during my visit)



L to R - Dan Gorshe, Darwin Upton and Chris Keeley



Dan Gorshe and owner Darwin Upton, out in the shop.



L to R - Owner Jeffrey Hage and Builder Jamison Hage



L to R - Rob Kamps, Wendy Hage and Dan Nelson



L to R - Andrew Maki, Keven Kamps and Aaron McIntyre

them as a business owner. He moved to his current location about 2½ years ago. He gave me the tour and introduced me to all the guys. Darwin runs an excellent shop, with customer needs obviously on the top of his list, and it was great to see he was busy.

Next stop was Hage-Kobany Transmissions in Columbia Heights. I visited there once before and during my last visit they had just installed an alignment rack. The idea was to avoid having to send their customers' cars out for a front-end alignment after a front-wheel-drive transaxle replacement. It was a good move for them: Not only are they able to serve their customers better but they've picked up some alignment work, too. It seems to be more and more popular for shops to offer a wider range of services.

Something that changed since my last visit is that the owner, Jeff, takes time away from the business, spending less time on the day-to-day operations. That was the case today. I visited with his son Jamison, as he gave the tour.

Jamison and I have a mutual interest outside the transmission business: barbeque and smoked meats. Barbeque is one of my favorite pastimes and I always like to pick up a few tips when I run across a kindred spirit. One of Jamison's specialties is smoked fish. One of the things I have to watch out for is that if I start talking barbeque, I can easily forget that I'm there to talk about the repair business.

Jamison pointed out that they stay busy, but the percentage of rebuilds have gone down. That is, they're doing an increasing percentage of other types of work, which reinforced what

I'd observed from the other shops. Hage-Kobany has been serving the greater Minneapolis area since 1982.

My next stop was TSI (Transmission Shop Inc.), in New Hope. I was greeted by the manager, Joe Shearer. Joe's been in the transmission business for 31 years, 13 of those at TSI. TSI has been in business for 22 years.

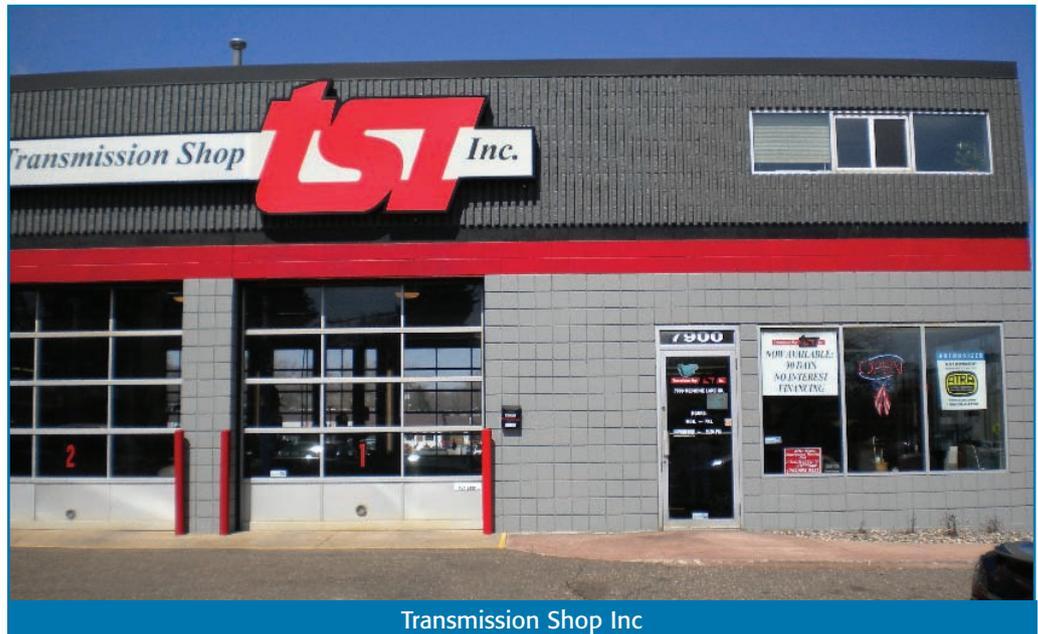
As Joe gave me the tour he mentioned that TSI has been at its current location for almost 3 years, and they use to be right across the street (actually kitty-corner). It was an interesting story as to how that came about but suffice it to say the location worked well for them and business was good.

While I was there I noticed they had an old Powerglide on the bench. Talking to the rebuilder, Rick Wilbur, and chassis tech, Garrett Setterstrom, I learned they see these oldies pretty frequently. Rick has been with TSI for 4 years and Garrett for 7.

It was getting late in the day but I figured I'd get that last visit in by going to the shop across the street. It wasn't visible from the TSI parking lot but to my surprise, when I got closer to it I realized I was back at Darwin's shop. It turns out the city line between Golden Valley and New Hope is in the middle of the road.

So, today it looked as though the glut of broken cars and the customers' reluctance to fix them is turning around for Minneapolis shops; great news for sure. I had a terrific time visiting the shops in town. Now it was time to head back to the hotel and prepare for the meeting that evening.

Before I close, there's one thing I have to come clean about: When I got back to the office I learned that the card in my camera became corrupted and I lost all but two of the pictures I took that day. Fortunately for me, the guys I visited were more than happy to take a few snapshots for me. Next stop for me, Denver; I'll make sure to have a new memory card on hand. See you next time!



Transmission Shop Inc



TSI Manager, Joe Shearer



L to R - Garrett Setterstrom, Scott Stemper, Joe Shearer, Rick Wilbur and John Wilson



# 61ST ANNUAL STATE HIGH SCHOOL SKILLS USA COMPETITION

by Charles E. (Ed) Doyle, Jr.,

ATRA International Secretary-Treasurer,  
Region 5 Director and Southwest Chapter President

**A**TRA has always been involved in continuing education. But lately we've been working to become more involved in the education and training of the young people who are interested in entering our industry. This month I was invited by San Jacinto College of Houston, Texas to help judge the 2009 State High School Skills USA Automotive Competition held in Corpus Christi, Texas.

I was asked to judge the Individual Rebuilt Automatic Transmissions of the automotive competition, and to create and judge the Automatic Transmission Skills Station of the Automotive Skills Division competition.

This was an eye-opening experience because all of the participants were high school students from Texas.

They were amazingly energetic, very talented, and extremely eager to learn.

The three-day state competition had more than 4200 participants and 180 categories. Thursday evening the judging began with the Automatic Transmission Division. There were 15 state finalists competing for the Best of Show trophy and a slot in the National High School Skills USA Automotive Competition held in Kansas City, Missouri.

Participants were instructed to remove, inspect and assemble the transmission of their choice, either by themselves or as a team. Each participant presented a notebook with step-by-step teardown and reassembly procedures for his or her transmission, including a report and pictures; they then had to place their notebooks and completed transmissions on the tables for final judging.

All of the participants did an excellent job with their presentations and the transmissions were amazing. I had my work cut out for me judging the transmissions, but after inspecting each transmission and presentation book, we selected a Best of Show Winner: Jessie Sloan, a senior from Azle High School, near Fort Worth, Texas. Jason has plans to attend Texas State Technical College in Waco, Texas.

Friday morning began bright and early with the Automotive Service Technology Competition. There were 26 participants competing for a spot in the national competition to be held Kansas City, Missouri this June.

The contestants were to demonstrate the ability to perform jobs and skills based on the task list outlined by the National Institute for Automotive Service Excellence (ASE) and the National Automotive Technicians



Welcome to the 61st annual state high school skills USA competition being held in Corpus Christi, Texas.



Entries for the individual rebuilt automatic transmission division.



Atra secretary-treasurer Ed Doyle begins the judging of the individual rebuilt automatic transmission entries.



The 61st Annual State High School Skills USA Competition Presentation

Education Foundation (NATEF).

Workstations consisted of on-vehicle simulations, bench-and-component testing, and a written test. Contestants were judged on technical competence, accuracy, quality, safety, and ability to follow directions. There were thirteen skill stations plus the written test. Participants took the written test on Thursday afternoon; they had 8 minutes at each of the other twelve skill stations to read and perform the procedures.

The participants were asked to identify, reconstruct, teardown and reassemble, perform tests, and complete a job interview. Participants were judged individually at each station. All of the scores were tallied at the end of the day.

Saturday morning was the final competition: Leadership. The Awards Presentation Ceremony was on Saturday afternoon. It included the grand prize trophies; first, second and third place medals; college scholarships; and many other prizes.

Students and teachers entered the auditorium for the presentations. The winners for the State High School Skills USA Automotive Service Technology Competition were:

First Place — Allen Parker of Vidor High School in Vidor, Texas.

Second Place — James Kimery of Tuloso-Midway Academic in Corpus Christi, Texas.

Third Place — Jesse Hackfeld from Birdville Independent School District Career Center in Haltom City, Texas.

The first and second place winners will be attending San Jacinto College starting this summer, and will return in two years to their sponsoring dealerships in their hometowns.

San Jacinto College has been involved in this competition for years. To learn more about Skills USA, check out their web page at [www.skillsusatx.org](http://www.skillsusatx.org) (Texas) or [www.skillsusa.org](http://www.skillsusa.org) (and your state).

ATRA and I would like to wish the winners of the State High School Skills USA Automotive Service Technology Competition and the Automatic Transmission Skills Division great success in the National High School Skills USA Automotive Service Technology Competition and Automatic Transmission Divisions. These young



ATRA secretary-treasurer Ed Doyle presenting ribbons to state high school finalist. Each of the finalist were judged independently and each finalist was eligible to win a first – third place ribbon in the individual rebuilt automatic transmission division. With top prize winner being “the best of show.”



“The best of show” winner of the individual rebuilt automatic transmission division of the 61st Annual State High School Skills Usa Competition, Jessie Sloan, senior of Azle High School of Azle, Texas. 1969 Dodge 727 Torq Flight Transmission.



The 61st Annual State High School Skills Usa Competition Automotive Service Technology Division Medal Winners From Left To Right: Gold Medal Winner Allen Parker Of Vidor High School, Vidor, Texas; Chris Tran, Proctor Of San Jacinto College Of Pasadena, Texas; Albert Waits Of Lamar University Institute Of Technology Of Beaumont, Texas; Silver Medal Winner James Kimery Of Tuloso-midway Academic Of Corpus Christi, Texas; And Bronze Medal Winner Jesse Hackfeld Birdville Independent School District Career Center Of Haltom City, Texas

people are the future of our industry, and we at ATRA must strive to keep them educated and interested in the transmission industry.

There are a lot of young, excited, and very talented individuals in our high schools. It's to our benefit to take an interest in these young people, and help them better themselves for the sake of our industry.

Now is the time to get involved with your high school automotive pro-

grams. Help sponsor some of these young people to become future technicians in our industry, and educate them in the way we'd like our industry to continue. Remember the quote from the movie *Field of Dreams*: “Build it and they will come.”



# Cash-for-Guzzlers:

## A Non-Issue for the Auto Repair Industry...

**Y**ou're probably already aware that the Car Allowance Rebate System (CARS), more commonly known as "cash for guzzlers" bill, passed through Congress and was signed into law.

No doubt you're probably looking at this as another nail in the auto repair industry's coffin. But a closer look reveals that CARS may well be the biggest non-issue ever to come our way.

That's because it carries so many stipulations that there are only about six guys who'll actually be able to take advantage of it, plus a woman from Nebraska named Barbara Sue.

Think that's an exaggeration? Well, yeah... but not as much as you might guess.

### The Specifics of CARS

To take advantage of CARS, you must trade your 1984-or-newer car in for a new one; you can't buy used. And to get the \$4500 trade-in, the car you're buying has to carry an EPA gas mileage rating at least 10 MPG higher than the one you're replacing; you can get \$3500 for a 4-MPG improvement.

And this program won't go on forever, whatever the cost: The government has allotted \$1 billion, with a cutoff date of November 1, 2009. If the money runs out before November, the program's over.

CARS has the potential to take about 250,000 older cars off the road. But there are about 250 million cars registered in the US today, so the CARS program can only replace about *1/10 of 1 percent* of the cars currently on the road.

To bring that number into perspective, if you worked on 1000 cars last year — about four cars a day — CARS has the statistical potential to remove *just one car out of that thousand* from the market. Not exactly the business killer we were expecting.

### Drop in the Bucket

The CARS program was initially expected to help "bail out" the new car industry. It would provide consumers with a benefit for trading their cars, which, in turn, would help shore up failing auto manufacturers.

But new car sales were down 1.8 million in the first four months of 2009. And some estimates suggest they may be off by as much as 10 million by the end of the year.

Enter the CARS program, which has the potential to help consumers replace up to 250,000 cars. That would reduce the projected shortfall from 10,000,000 to 9,750,000 — not exactly a momentous save for auto manufacturers. And hardly a crippling blow to the auto repair industry.

### Guide Your Customers

One of the biggest problems with this program is consumer perception. They hear the nickname "cash for guzzlers" and assume the government is going to send them a big, fat check for their cars.

The problem is, they could easily start down the wrong road and end up losing big on the deal. Once they've chosen their new car and agreed to the trade, it could be too late to get out of a no-win situation.

This is where you come in: You need to explain the specifics of the program *before* the customer makes a costly mistake he can't escape from.

A couple web sites you can use to help explain the process are:

[www.cars.gov](http://www.cars.gov) — government web site with the CARS program details, and links to the EPA gas mileage ratings.

[www.kbb.com](http://www.kbb.com) — Kelley Blue Book for calculating vehicle values.

And ATRA's online calculator for comparing the cost of a new car versus a repair, at [www.atra.com/calculator](http://www.atra.com/calculator).

Start by examining the car: Does it even qualify? Anything older than 1984 doesn't. And is the car worth fixing and reselling? In some cases the CARS program might be a Godsend... if the customer can afford the additional expenses of a new car.

Next, ask what he'd like to buy. Remember, the customer has to trade in his *old* car on a *new* car. Go to [www.cars.gov](http://www.cars.gov) and look up the EPA gas mileage ratings for both cars. In many cases the customer won't be eligible for the rebate, because there isn't enough difference in the EPA gas mileage estimates.

Then check the car's value at Kelley Blue Book. This might reveal some serious economic benefits to fixing and selling the car over trading it in with a problem.

Remind the customer of the additional costs of a new car, beyond the sticker price: new car prep, sales tax, those extras he can't possibly live without, and the extra insurance on a new car.

Finally there's the loan interest; zero percent financing is only available to people with perfect credit. Without that, he could end up paying 15% or more. On a \$15,000 loan over 5 years, that's more than \$6000 in additional expense... a lot more than the CARS trade-in allowance! Visit ATRA's online calculator for a side-by-side comparison of those costs.

Once you've examined the details of the CARS program with your customer, it'll quickly become apparent that this isn't the gift it once appeared to be. And even if the repair cost exceeds the value of the car, it could still work out to be a huge savings over buying a new one.



# Expo's Just Around the Corner!



by Dennis Madden  
[www.atra.com](http://www.atra.com)

I always get energized as Expo approaches. For me, Expo is a non-stop, weeklong celebration where I get to touch base with old friends, make new friends, and hear the best tips and ideas... all against the backdrop of the 24-7 festival that is Las Vegas.

This year the excitement has built to an entirely new level. Let's face it: It's been an extraordinary year. The global economic woes which led to so many dealership closings caused the auto repair industry to rebound as was predicted by the results of our consumer marketing study.

In fact, business has picked up so much for many shops that it might be easy to assume that the tough times are behind us.

Don't count on it.

Business runs in cycles. Things get busy, then they slow down again. And there's not much you can do to control those cycles.

But the businesses that have the best chance to survive — even *prosper* — are the ones who take full advantage of this surge to prepare for the next dip in the cycle.

They're the ones who continue to advertise, even though their bays are full. They're the ones who try experimental sales techniques and add new services to their roster. And they're the ones who'll be joining us in Las Vegas for this year's Expo.

Because that's what Expo is all about. It's why we created the *What's Working* study in the first place: To help share the best ideas and techniques from shops around the world for keeping your bays full... even when other shops are spending their days sweeping

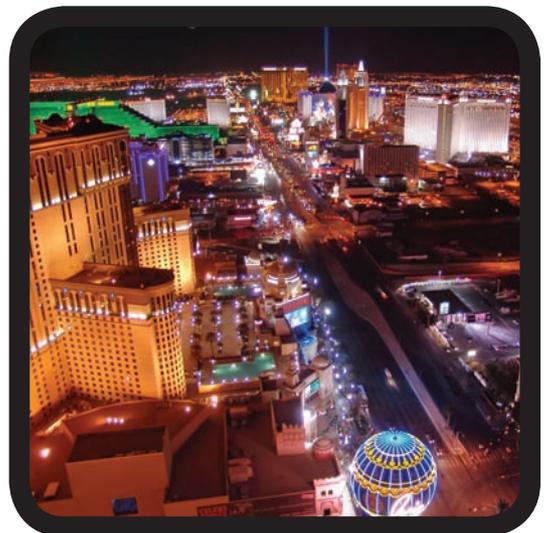
up or reorganizing inventory.

This year our management team has developed an outstanding approach to help you turn *consumers* into *customers*... *your* customers. Not to be outdone, our technical team has moved all their technical seminars into one room: No more picking and choosing which seminars to attend, and which you'll have to live without

And for the first time ever, we've joined forces with the Automotive Parts Rebuilders Association (APRA) to bring a wider variety of vendors to the trade show floor. What's more, just as Expo winds down, the SEMA show kicks off, so you can take advantage of two shows in one trip!

Is it any wonder I'm so excited?

There's no doubt about it: This year's Expo might be your best opportunity to redefine your business, and begin to take advantage of a new era in auto repair. If you're serious about auto repair, this is one Expo you simply can't afford to miss!



So make your reservations now, and stake your claim for your future. We'll see you there.

I know I can't wait...



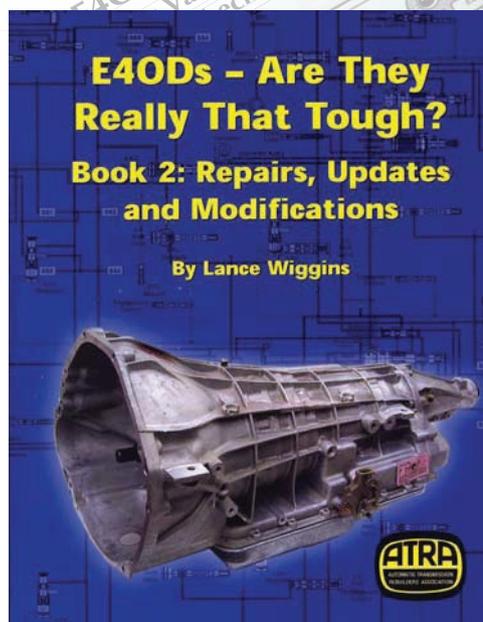
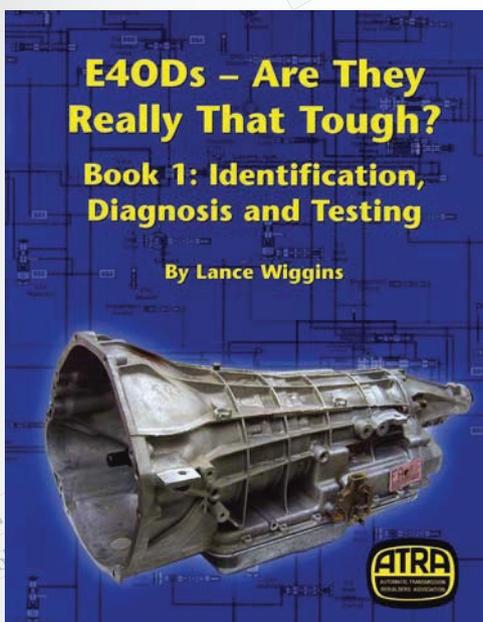
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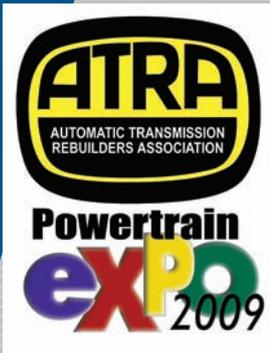


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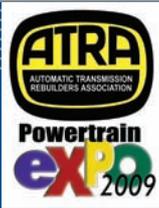
# ***ATRA's Powertrain Expo***



**Two Shows Under  
One Roof!**

***Kick off Industry Week!***

**October 29 - November 2, 2009 • Las Vegas, NV  
Riviera Hotel & Casino**



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# Powertrain Expo



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You'll never have a better opportunity than during this expansive show. Many of the exhibitors at the show are offering "**Blow Out**" deals you can't find any other time. The savings alone with a few of these bargains can easily wind up paying for the event.

No matter what your needs, this is a weekend you can't afford to miss! **Everything you need to expand your business is here.** And you'll have an opportunity to **visit with Industry Experts** who can help you with your buying decisions.

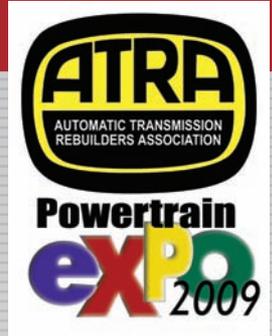
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Oct. 29 - Nov. 2  
Las Vegas, NV  
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## Complete Conference

As a Complete Conference attendee you will have access to all technical and management seminars Thursday through Saturday, Saturday Cocktail Reception, Sunday Breakfast, coffee breaks, Sunday and Monday Trade Show Admission, complete speaker handout materials and audio CDs of all seminars at this year's show!



## Technical or Management Conference

Attend either the Technical or Management seminars Thursday through Saturday, Saturday Cocktail Reception, Sunday Breakfast, coffee breaks, Sunday and Monday Trade Show Admission and Technical or Management speaker handout materials.

## Golf Tournament Saturday, October 31

Start your Expo week with a "good walk, spoilt" at the 6th Annual Red Girdley Memorial Golf Tournament, sponsored by Toledo Trans-Kit. This year's tourney is being held at the world famous Wildhorse Golf Club; a beautiful course that was featured in Golf Digest as one of the best places to play. Sign up today; the early bird gets the best start times...and we'll see you on the links.



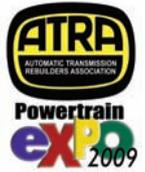
## Trade Show Only Sunday, November 1 Monday, November 2

This year get more bang for your buck when you purchase a Trade Show Only pass. This is your ticket to two trade shows under one roof! ATRA and APRA have joined forces to bring you more than 100 exhibitors and 45,000 square feet of new & exciting products & services.



# Registration Form

October 29<sup>th</sup> - November 2<sup>nd</sup>, 2009 • Las Vegas, Nevada



Register online and Save \$10 per person for Complete Conference Registrants

Company Name _____		ATRA Account Number _____	
Contact Person: (will receive all correspondence) _____			
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**TO REGISTER: Call toll free 1-800-428-8489 or FAX this completed form to 805-988-6761**

*Badges will be issued from this list. Use a separate sheet for additional registrations. \**

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CONFERENCES * <i>(Includes Breakfast and Trade Show)</i>			OTHER CATEGORIES		
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		Member	Non Mem	Member	Non Mem			
Complete Conference Registrant*	_____	\$ 295	\$ 395	\$ 345	\$ 445	\$ 495	\$ _____	
Technical or Management Conference*	_____	245	345	295	395	445	\$ _____	
Trade Show	_____	10	10	10	10	30	\$ _____	
Breakfast (Sunday, November 1 <sup>st</sup> )	_____	45	45	55	55	55	\$ _____	
Golf Tournament (Saturday, October 31 <sup>st</sup> )	_____	110	110	125	125	125	\$ _____	
Certification Testing (Sunday, November 1 <sup>st</sup> ) FREE	_____	-	-	-	-	-	\$ _____	
<b>*Conference Registrants may receive Trade Show Passes for spouse and/or children by contacting ATRA Registration at 1-800-428-8489.</b>							<b>TOTAL</b>	<b>\$ _____</b>

I do **not** wish to receive any advertising or promotional material from Exhibitors.

## PAYMENT INFORMATION

Check enclosed payable and mail to: ATRA, 2400 Latigo Avenue, Oxnard, CA 93030

Check # \_\_\_\_\_

Charge to:       MasterCard     Visa     AMEX     Discover

Card Number \_\_\_\_\_

Expiration Date \_\_\_\_\_

Print Name on Card \_\_\_\_\_

Signature \_\_\_\_\_

Tear along dotted line and return to ATRA with payment.

# Helping Members Reach More Customers



by Kelly Hilmer

*ATRA is working to improve its visibility, to bring more customers into ATRA Members' repair shops.*

Recently ATRA began reaching out to consumers to improve its name recognition among the motoring public. The object has been to turn those consumers into customers... *your* customers. And we've seen a terrific response to many of our efforts to create greater awareness for ATRA Members.

ATRA has one primary goal: To provide the support ATRA Members need to be more profitable. Today, most shop owners agree that the biggest obstacle to profitability is fewer customers.

At ATRA our position is simple: ATRA Members need customers, so ATRA is working on new ways to help bring more customers into ATRA Members' shops. One of the ways we're addressing this goal is to harness the power of the internet for ATRA Member shops.

## Rapid Quote

We recently introduced a new feature on the ATRA Member web sites: Rapid Quote. Here's how it works:

The consumer clicks the Rapid Quote link, which takes her to the Rapid Quote page. She enters her car information, such as make, model, year and the problems she's experiencing. Rapid Quote instantly forwards that information to the shop.

The shop can then respond immediately to the request with a "Rapid Quote."

The day after this feature appeared on ATRA Member web sites, four Members called to let us know they'd already received quote requests. Here's what Gerald Vess, President of Aarmco Transmissions, had to say about Rapid Quote:

"The New Rapid Quote feature is working great. We get responses almost

daily and we're making 99% sales from the customers who've contacted us through the Rapid Quote page."

Rapid Quote shows up automatically on all ATRA Member web sites. Each Member has the option of leaving it on, or can turn it off with a single click on the control panel.

## Fix or Replace Calculator

How often does this happen? The customer hears the estimate price and says, "Maybe it's time to buy a new car." For too many shops, it's a regular occurrence.

But the idea of replacing the car to avoid a costly repair is often based on false economy. That's why ATRA developed an online "fix-or-replace" calculator. It allows the consumer to make a side-by-side comparison between the cost of fixing his car with buying a newer, more efficient model. In most cases, replacing the car proves to be much more costly than the repair.

The calculator was originally created for ATRA Member web sites, but we had so many requests for it from other ATRA Members that we developed a generic version you can access at [www.atra.com/calculator](http://www.atra.com/calculator).

## Online Advertising

Online advertising is the most cost-effective way of reaching consumers, and it's a big part of our push to attract more customers to ATRA Member shops. Search Engine Optimization (SEO) is one way ATRA is working to improve its rankings and the exposure for ATRA Members' shops.

ATRA is also expanding its marketing efforts using Google Adwords, Yahoo Search Marketing, and Facebook, all with the goal of directing consumers to the ATRA Shop Finder page on [www.atra.com](http://www.atra.com).

## ATRA Shop Finder

This past June, ATRA received more

than 5000 visitors to the Shop Finder page. That's 5000 potential customers looking for an ATRA Member transmission shop.

Of course, getting them to the Shop Finder page is just half the job: The other half is having them choose your shop. To do that, you should check a few things on your ATRA shop listing:

- Make sure you have your web site and email listed.
- Check your web site and email addresses and make sure they're spelled correctly.
- Make sure your links work. Click each link and make sure the site link takes you to your web site, and the email link sends you an email.
- Check your position on screen. There are three positions available:
  1. Rebuilder Members with ATRA Certified Technicians
  2. Rebuilder Members
  3. Technical Subscribers

We recently discovered more than 60% of the ATRA Members listed don't have a web site. If you don't have a site, get one: It's one of the cheapest ways of putting your name in front of potential customers, and more consumers are checking online when they're looking for a transmission shop.

If you're uncertain how to build or create a web site, ATRA can help you get one set up quickly, and at a terrific price. And because you're an ATRA Member with an ATRA-hosted site, you'll be able to take advantage of all these great new, Members-only features on your web site. Contact a Membership Services representative for details at 805-604-2000.

Not an ATRA Member? If you sign up today, you could have your ATRA-hosted web site up and running within the week! Don't wait... sign up today, and take advantage of ATRA to help bring more customers to your door!





## EXTREME MAKEOVER: Chapter Websites Edition

By Kelly Hilmer

Move that bus! Do you recognize the famous line from the TV show *Extreme Makeover: Home Edition*? It's typically shouted by hundreds if not thousands of spectators to move a large bus that, once moved reveals a brand new amazing home that was designed, constructed, decorated and furnished complete with landscaping within seven days from start to finish.

Okay, it's not exactly the same when unveiling new websites as unveiling a brand new amazing home and it certainly didn't happen within seven days! But with newly designed and constructed websites it feels like our grand moment to reveal the brand new "Home Pages" for the eleven local ATRA Chapters.

First of all, I'll give you a brief description of what the ATRA Chapters are for those of you that may not be familiar with them.

In general, the ATRA Chapters serve to promote the general welfare of all ATRA Members within its defined area.

Local ATRA Chapters offer the Members opportunities they could not realize on a National or International basis. The primary purpose of a chapter is to engage in local activities that directly affect and enhance the transmission rebuilding industry. These activities may include some of the following:

1. Working with community colleges to help train technicians, and for job placement.
2. Local advertising that promotes business for ATRA Members in that Chapter.
3. Meeting with Chapter shops to discuss business topics and solutions.
4. Provide technical and management training seminars and programs.

5. Sponsor other shops in the Chapter area for ATRA Membership.

There are eleven chapters of ATRA throughout the United States and Canada (not all areas are supported by a local chapter). It may be a bit further to stay connected, but there is another alternative. Starting a local ATRA chapter in your area is not difficult. If you and two other shop owners in your area have an interest to start a chapter, ATRA will assist you in getting the process started so you too can take advantage of the local support needed in your business. Visit our website at [www.atra.com/startchapter](http://www.atra.com/startchapter) for details.

If there isn't a chapter in your area it doesn't mean that you can't participate. Take a look at the chapter maps and at the marked areas to determine the chapter area nearest you that your shop would benefit and bookmark their new website so you can be informed of their events and updates.

### List of ATRA Chapters

Gulf States Chapter  
 Carolina States Chapter  
 Empire States Chapter  
 Southern California Chapter  
 Northern California Chapter  
 Western Canada Chapter  
 Rocky Mountain Chapter  
 Southwest Chapter  
 Midwest Chapter  
 Mid-Atlantic Chapter  
 New England States Chapter

### The Makeover

The websites now offer each chapter the ability to list their local events with ATRA as well as chapter sponsored events. Many chapters offer training seminars or workshops locally to its members at no cost. Sometimes the chapter may charge small fees to cover costs of food and rental spaces. Non-members of the association can occasionally attend as well for a fee and depending on space availability. But the majority of the events are supported by the chapter at no cost to the membership in the designated area.

In addition to chapter sponsored events there are links to ATRA's technical and management seminars and annual trade show, the ATRA Powertrain Expo to retrieve the details of the event such as dates, times, content, costs and registration information.

All of the local and nationwide industry event information is at your fingertips in one convenient location!

Plus, you will be kept up-to-date with your chapter now that the officers have the ability to send email updates to all the ATRA Members automatically from the ATRA database of membership. As long as your membership is currently active, you will receive email notifications on events and activities from your local chapter. To make sure you receive these updates, be sure to let ATRA know your chapter location for the appropriate chapter related notifications.

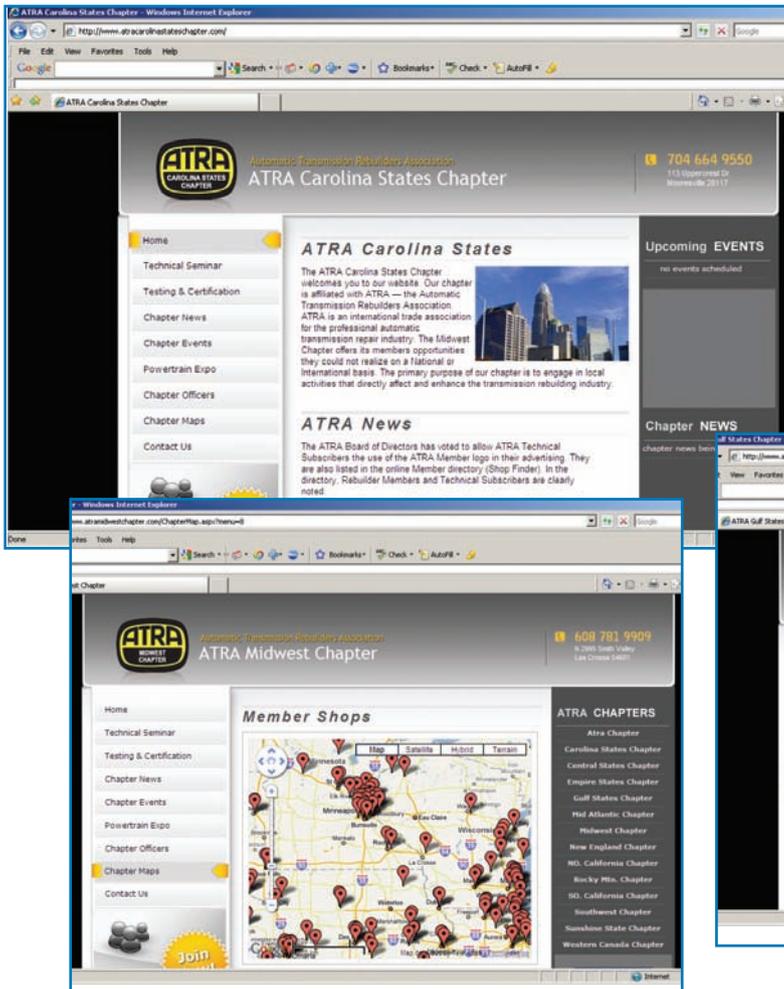
And now for the big finale of our Extreme Makeover...the best part about the local ATRA Chapters is that as a member of ATRA, chapter membership is free! As long as you are a current member of the association, you are automatically a member of your local chapter at no additional charge. It's another

added benefit of membership in the association.

And by being a member of an ATRA chapter it allows your business to gain extra resources and collectively work with a group of professionals in your area. It's a relief to know there are others in your industry nearby and you are not alone.

Now, "Move that bus!" so to speak and check out the new chapter websites today.

- [www.ATRAGulfStatesChapter.com](http://www.ATRAGulfStatesChapter.com)
- [www.ATRACarolinaStatesChapter.com](http://www.ATRACarolinaStatesChapter.com)
- [www.ATRAEmpireStatesChapter.com](http://www.ATRAEmpireStatesChapter.com)
- [www.ATRASouthernCaliforniaChapter.com](http://www.ATRASouthernCaliforniaChapter.com)
- [www.ATRANorthernCaliforniaChapter.com](http://www.ATRANorthernCaliforniaChapter.com)
- [www.ATRAWesternCanadaChapter.com](http://www.ATRAWesternCanadaChapter.com)
- [www.ATRARockyMountainChapter.com](http://www.ATRARockyMountainChapter.com)
- [www.ATRASouthwestChapter.com](http://www.ATRASouthwestChapter.com)
- [www.ATRAMidwestChapter.com](http://www.ATRAMidwestChapter.com)
- [www.ATRAMidAtlanticChapter.com](http://www.ATRAMidAtlanticChapter.com)
- [www.ATRANewEnglandStatesChapter.com](http://www.ATRANewEnglandStatesChapter.com)



For more information on ATRA Membership, visit our website at: [www.atra.com/join](http://www.atra.com/join)

**The websites now offer each chapter the ability to list their local events with ATRA as well as chapter sponsored events.**



## Jim Lyons Bids Farewell after Two Terms on the ATRA Board

by Steve Bodofsky

*Two longtime Board Members will be retiring this year. We'll talk to Jim Lyons in this issue, and will speak with 21-year veteran Gary Jennings next issue.*

This year, Jim Lyons will be retiring from the ATRA Board of Directors after two consecutive terms. When asked why he was leaving, he replied with a wry chuckle, "I'm nearly 70!"

He went on to explain: "I don't really have much hands-on involvement in the business any more, so sometimes I feel a bit out of the loop. I'm still excited by the new technology that's coming on line, but some of it is starting to get a little ahead of me."

Fair enough; we can only hope that we all manage to take an active role in this industry for as long as Jim has. But we

can't imagine allowing him to walk away from the limelight without taking a look back at his life, his years in the transmission business, and his time on the Board.

Jim got his start in mechanical repair at a very early age. He grew up on a farm back in the '40s and early '50s. Back then it was commonplace for farm owners to maintain and repair their own equipment. But as a youngster, Jim's curiosity for all things mechanical sometimes got the better of him:

"I learned to work on engines while I was still in school. One day I decided to see how the motor worked for my dad's grain auger, so I took it apart. It was an eight-horsepower Briggs & Stratton engine. My dad took one look and warned me not to come in for dinner until he could hear it running again.

"It took me till eight o'clock, but I got it running. When I went into the house, my sweet mother had my dinner warm

and waiting for me.”

Jim started working on transmissions in his back yard, working on two-clutch, two-band Hydramatics, Dynaflores and a few other transmissions from a different era.

“I learned mostly by working with people who had experience with transmissions,” said Jim. “And the rest I learned from technical manuals. I still have some of those manuals, and refer to them when an old unit comes in the door.”

Then a transmission shop opened up in Winnipeg, so he applied for a job there. It took about three months of pestering the shop owner before he hired Jim as an installer.

Jim worked his way up, and when the owner wanted to open a second shop in nearby Brandon, Jim agreed to run it for him.

While there he met Hennie, the woman he later married. They have two daughters: Sherry and Lori Ann.

Jim later returned to the original shop in Winnipeg. When things didn't go as planned, he moved his family back to Brandon. There Jim opened his first transmission shop; Hennie ran the office for him. Later, Sherry came onboard. She soon took over the office duties, and today she runs the business end of Lyons Transmission Centre.

While working at the shop, Sherry met Kirby Baumung, one of Jim's technicians. They married and today they've taken over Lyons Transmissions, which they run together. And Jim is happy to let them handle the operation of the business, and just stop in when an older car comes in requiring his knowledge and experience from days gone by.

Jim joined ATRA in December 1983 at the recommendation of Carl Wiegler, who operated a shop out of Vancouver. The transmission world was just beginning to see some dramatic changes with the introduction of lockup converters and front-wheel drive transaxles, so many shops were looking for additional technical support for their businesses.

“I didn't know anything like ATRA existed,” says Jim. “My main reason for joining was the technical support. But the warranty was a valuable asset when selling transmission repair.”

The technical support and Golden



Jim Lyons

Rule Warranty were important to Jim and his shop, but the real, life-changing experience came during an ATRA-sponsored management seminar a few years later. At the time, Jim was struggling with his business. He had plenty of work, but just wasn't managing to stay ahead of his bills.

“During the seminar, I learned I wasn't alone; a lot of shops were having problems making ends meet,” says Jim. “The problem was pricing: I wasn't pricing my jobs properly, based on my costs.”

Jim took what he learned at the ATRA seminar to heart, and jumped in with both feet. He reevaluated his pricing structure, and raised most of his prices. The results were astounding.

“Suddenly we were making money,” says Jim. “The price shoppers were going away, which was okay because they were usually more trouble than they were worth.”

“But what was really surprising was how many customers we picked up just by raising our prices. Turns out a lot of customers would compare our prices to the dealers'. We were so much lower that they assumed there was something we weren't doing right or cutting corners. By raising our prices, those customers became confident in the work we were offering. But we were still lower than the dealer, so we'd usually sell the job.”

A couple years later Jim took the plunge and bought his present shop. “Our new pricing procedures enabled us to make the purchase without placing a burden on the business.”

In 2000, Jim decided to run for a position on the ATRA Board. In that election he ran against the incumbent, Wilf Burnett, who operated Wilf's

Transmissions in Vancouver. Jim lost that election.

“I was told that if I'd voted for myself and brought a friend, I'd have won,” quips Jim. “I ran again in 2003. Wilf decided not to run this time, so I ran unopposed.” Needless to say, this time Jim won.

While in office, the accomplishment Jim is most proud of is the change to the Articles of Incorporation, allowing ATRA to take a leadership role in management training. This type of training was a valuable asset to him, and he's proud to have been able to help ATRA make management training and support a key part of the services it can offer its Members.

Over the years, Jim has developed a deep and abiding respect for ATRA and what it's done for his shop, and the industry that has been a major part of his life for so many years. And he's quick to point out that he'd never leave ATRA in the lurch. His decision to step down was contingent upon finding someone to step up and take his place.

Jim has some very simple advice for today's transmission shops: “Fix the customer's complaint.

“Too many shops consider themselves to be exclusively transmission shops. And if the customer comes in with a problem that isn't in the transmission, they want to send it down the road. That's foolish: If the customer thinks he has a transmission problem and it turns out to be a computer problem, fix it!”

And not just computer problems: “You have the transaxle out of the car, the wheels are off and the brakes are right there in the open. Take a look at them. If they're worn, offer to replace them. Tell the customer, ‘We have it apart already; it'll only cost you another \$200 to install new brakes and rotors.’ It just makes sense for the customer, and it makes sense for the shop.

“Shop owners tell me, ‘the customer's already spending \$3000 for a transmission. They're not going to spend another \$200 for brakes.’ I say, ‘did you ask?’ The worst they can say is no.”

Jim offers this simple piece of advice to the industry: “Be honest; be fair.” Hard to argue with that.



GEARS does not endorse new products but makes this new information available to readers. If you have a new product, please email the press release information with applicable digital photo or drawing to [fpasley@atra.com](mailto:fpasley@atra.com) or send by mail to GEARS, 2400 Latigo Avenue, Oxnard, CA 93030.

## VBX Announces Global Expansion



VBX-ValveBody Xpress is proud to announce their upcoming expansion into the European Market.

Plans are currently being finalized to open VBX-EU in the Netherlands.

According to company president, Tim LaCerra, VBX is forming a partnership with Startrans to open VBX-EU in an effort to provide our ever growing product line of guaranteed remanufactured valve bodies to customers overseas. Expansion plans should be finalized this summer, at which time more information will follow about distributor locations.

For additional information or to inquire about distribution opportunities, please contact VBX toll free at (866) 2GET-VBX or visit them on the web at [www.valvebodyxpress.com](http://www.valvebodyxpress.com).

## Billy Johnson; 1935–2009



Billy Johnson with his wife Betty

Longtime ATRA Member and shop owner Billy Johnson passed away this past July; he was 74 years old. Billy owned and operated Johnson's Transmissions in Memphis, Tennessee.

For many, Expo didn't begin until they ran into Billy at the registration booth or one of the events or seminars. And he never missed a seminar: Billy considered continuing education to be one of ATRA's most valuable services... one he continued to take advantage of his entire life.

And not just at Expo: Billy was also a mainstay at the Southern States Region's seminar programs, in which he was an active Member. ATRA Board Member Laura Wilson remembers Billy as a man who "never stopped trying to learn. Even at his age, when so

many others would want to start slowing down, he was always working to keep up with the latest information and technology that would show up in the shop."

GEARS Managing Editor Rodger Bland remembered asking Billy about his ravenous appetite for education. "You've forgotten more than the rest of us can ever hope to know," said Rodger. "That's why I have to keep studying," quipped Billy. "By tomorrow I'll have forgotten half of what I learned today!"

But Expo wasn't just about education for Billy. He would revel in the social aspects of the meeting, taking full advantage of the opportunity to catch up with old friends, and make new ones every year. Those who knew Billy were quick to call him a friend, and will be saddened by his absence at this year's Expo.

## Zoom Technology Support Available from SuperFlow

Own any Zoom Technology products? TranX 2000 transmission analyzer? Sol-X solenoid tester? Smart Switches? Answermatic valve body tester? Or AMI hydraulic circuit analyzer? Now you can register for extended product support, service and updates through SuperFlow Technologies Group. And if you do it now, you could win a new IPOD NANO or TranX 2006 update!

"We want to welcome all former Zoom customers to the SuperFlow family and extend SuperFlow Customer Care to all Zoom users," says SuperFlow President/CEO Scott Giles; "And to ensure a smooth seamless transition, Chris Hansen and Larry Ditizio (two key Zoom Technology employees) are now on the SuperFlow team. Their experience in transmission testing and knowledge of Zoom products and customers will be invaluable to our success and to the quality of service we're able to extend to our valued Zoom Technology customers."

SuperFlow purchased the Zoom product line last month, and, as the exclusive authorized sales and service

organization for Zoom products, is hoping to assist all Zoom product users via their technical service and product support database. To register online, go to [www.superflow.com/zoomsupport.html](http://www.superflow.com/zoomsupport.html), or call Larry Ditizio at 515-254-1654 (ext. 126) or SuperFlow Service (ext. 180). To win the Nano or TranX 2006 update, Zoom users need to register by September 15, 2009.

For more information, please contact Chris Mann at (888) 442-5546.

## TransGo® AW55-50 Shift Kit®



Save \$700 to \$900

New End Caps

Drills

Lockup Relay Control

Solenoid Relay

Volvo 01-08 Nissan RE5F22A  
04-2008 AF33-5 - 2002-08 Saab - 03-04  
Saturn 05-06 Chev Equinox—2003-04  
Saturn 2006-08 Pontiac Torrent

YOU CHOOSE: \$700 - \$900 valve body or FIX it better than NEW with this kit.

Reduces/Corrects/Prevents Delay/Bang drive engagement. 4-3 and 3-2 coast clunk. 2-3 and 3-4 cut loose. Kick down runaway and Converter Slip. Kit Contains: Drills to resize solenoid bushings—end caps for rebuilding EPC, Lockup, & Accumulator control solenoids. New Steel: Lockup Relay Valve & Sleeve. and new Solenoid Relay Sleeve & Valve. For Distributor location or more information call TransGo at 626-443-7451.

## Gear Speed Launches New Online Store

Gear Speed is proud to announce the launch of its new, online parts store.

Gear Speed is very excited to be able to offer this new service to all transmission repair facilities. As a volume remanufacturer of transmissions for Honda/Acura automobiles,

they continually accrue additional hard parts, which they can then make available for you.

All parts have been cleaned and inspected for quality by their trained technicians prior to being added into inventory.

With the online parts store, you can place your order any time, day or night. Photo thumbnails for each item are included for identification ease.

If you need assistance, Gear Speed's friendly customer service representatives are available Monday-Friday, from 7 am to 4 pm Pacific Standard Time. Visit them at [www.gearspeedpartsstore.com](http://www.gearspeedpartsstore.com).

## GEM Electric Vehicles Transport Heads of State at 2009 G8 Summit

Fiat Group provides 33 emission-free GEM electric vehicles at eco-conscious event.

As discussions of energy efficiency and climate change take the front seat in this year's G8 Summit talks, Fiat Group and Chrysler Group LLC's Global Electric Motorcars are showing their dedication to environmentally sound transportation by providing 33 GEM e4 zero-emission electric vehicles at the G8 Summit in L'Aquila, Italy. The GEM cars will be the official shuttles for the Summit's attending heads of state. The highly anticipated meeting takes place July 8-10.

"Global Electric Motorcars is proud to collaborate with Fiat Group in providing GEM electric vehicles at the G8 Summit," said Rick Kasper, President and COO of Global Electric Motorcars. "This further validates the importance of neighborhood electric vehicles as a green transportation solution."

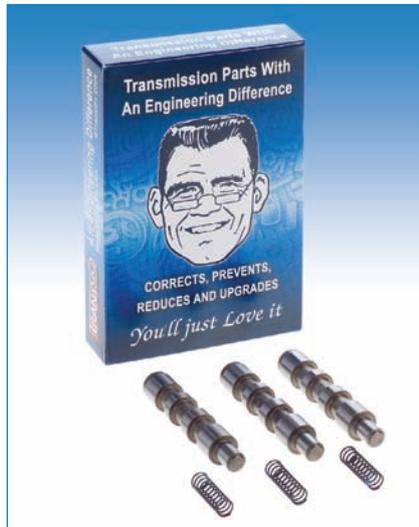
The G8 Summit has served as a powerful forum for environmental conservation and the fight against climate change. Reducing greenhouse gas emissions and the development of low-carbon content technologies will be a major focus at this year's Summit — causes that Global Electric Motorcars pioneers in its mission to provide environmentally conscious transportation alternatives worldwide.

As a wholly owned subsidiary of Chrysler Group LLC, Global Electric Motorcars has been the market leader

in the low-speed, NEV industry for the past 11 years and has more than 40,000 GEM battery-electric vehicles on the road worldwide.

For more information, to price your own GEM car, or locate a local dealer, visit [www.gemcar.com](http://www.gemcar.com).

## E4-VL-23 TransGo® E4OD/4R100 3 Steel 2-3 Shift Valves



Corrects: No 2-3 Upshift  
But has Reverse For E4OD F6 Valve Bodies. And all year 4R100's Kit fixes 3 Valve Bodies.

For Distributor location or more information call TransGo at 626-443-7451.

## Sonnax Billet Aluminum Forward Piston for 4L60-E Family



Sonnax eliminates forward piston breakage worries in 4L60, 4L60-E and 4L65-E transmissions with their new, high-strength, billet aluminum forward piston.

Sonnax 77764-01 piston's upgraded

material and improved design contours offer vastly improved durability over OEM cast pistons. The Sonnax billet piston can be installed in any early- or late-model unit equipped with an aluminum overrun clutch piston. This part requires no machining or modifications to install; it's a quick and easy upgrade for towing, plowing or any heavy duty or performance application.

Learn more about this and other Sonnax products by visiting their web site, [www.sonnax.com](http://www.sonnax.com).

## New Site is Like a Craigslist for Car Parts

California software company Bintelsoft, Inc, introduced a new web search engine for car parts: [www.checkanumber.com](http://www.checkanumber.com). CheckaNumber makes it easy to find parts within a specific zip code.

CheckaNumber features parts inventories from dealers, parts stores, warehouse distributors and others. It also includes an "eBay" style marketplace, where dealer items may be posted with details and pictures.

"Our new site is the perfect place to find car parts easily. We have also created a special link for auto dealers to sell their inventory. This is a great opportunity for recently closed dealerships," explains Ole Stein, CEO of Bintelsoft Inc.

CheckaNumber.com also offers relief to dealers stunned by recent dealership closings. CheckaNumber makes it possible for closing dealers to expedite their sales of parts, accessories, shelving, tools, shop equipment, computers, phones and furniture. They may even advertise their buildings and property. All items may also be uploaded to eBay, craigslist and worldlist using CheckaNumber's automated quick links.

Details of special offers for closing dealers are available here: [www.checkanumber.com/closing\\_dealers.php](http://www.checkanumber.com/closing_dealers.php)

For more information, contact Ole Stein, CEO at 888-317-1296 ext. 2, or email him at [ole@bintelsoft.com](mailto:ole@bintelsoft.com).

## Superior Introduces New ACCUMU-SEAL™ for Toyota and Lexus

Superior Transmission Parts, Inc. announces their newest ACCUMU-



SEAL™, patent-pending accumulator piston repair packages for 1998-up Toyota, Lexus and others equipped with the U-140, 240, 150 and 250 series automatic transaxles.

These units often experience these complaints: The transmission works fine cold. Then, after driving for about 20 minutes, it begins to slip on the 2-3 shift. The unit may lose 3rd gear, experience slips or flares, and eventually burn up.

Here's why: Surface wear, stress or debris can scratch or score the accumulator piston bore. This allows pressure to bypass the seal when hot. Even a small amount of wear will prevent the pistons from holding sufficient pressure.

A simple wiggle test will show wear in the bore. The original pistons have no provisions for sealing tolerances between the wall and piston face.

The new kits include Superior's ACCUMU-SEAL™ technology for a leak free, total fix, allowing you to reuse worn castings while maintaining a perfect seal. These kits also include a special, patent-pending Accumulator Buddy™ bore brush.

Superior Transmission part number K4F27E covers 4F27E, J39A and MAZDA FN4A-EL, and is available now at stocking jobbers and WDs.

Part number K088 covers 140/240-series Toyota and Lexus (2-piston units) and will be available shortly.

Part number K089 covers 150/250-series Toyota and Lexus (3-piston units) and will be available shortly.

Call 1-800-451-3115 to locate a distributor near you. Online catalog is available at [www.superiortransmission.com](http://www.superiortransmission.com).

## New Overhaul Kit for Volvo TF80 SC from TransTec

CORTECO is pleased to announce the availability of TransTec® overhaul

kit number DP2542. This kit repairs the TF80 SC 6-speed FWD/AWD transmission in these Volvo vehicles:

Model	Year Coverage	Engine
S 60 R	2006-07	2.5L
V 70 R	2006-07	2.5L
70 Series	2008	3.2L
80 Series	2008	3.0L / 3.2L / 4.4L
90 Series	2006-08	3.2L / 4.4L

### Featured Components

TransTec® Part Number	Description
B11527	Farpak® Pan Gasket
B37082	Front Seal
B37128	Right Axle Seal AWD (Outer)
B37129	Right Axle Seal AWD (Inner)
B37125	Left Axle Seal

DP2542 and all featured components are in stock and available for immediate shipment.

For more information, visit them online at [www.transtec.com](http://www.transtec.com).

## Ford 5R55S/W-HD2™ Increase Durability



Corrects: Noise and won't move. Saves big dollars by fixing pump. Has: 2 Steel Modulator Valves. Has Reamer & precision guide. Stops hard use Band Failures.

For Distributor location or more information call TransGo at 626-443-7451.

## Schaeffler Group USA Announces New Aftermarket Web Site

Schaeffler Group USA Inc. is pleased to announce the launch of its new automotive aftermarket web site, [www.schaeffler-aftermarket.us](http://www.schaeffler-aftermarket.us). Complete information on the company's LuK®, INA® and FAG® brands sold in the US and Canada is available.

The site features interactive catalogs to serve automotive professionals' needs for fast and easy access to LuK RepSet® clutch kits and system components; FAG hub and wheel bearings; and related vehicle-specific technical data and product images. It includes a full array of diagnostic tools, marketing collateral, and technical information.

A press office section provides press releases and images from Schaeffler locations all over the world. Downloadable PDF copies of brochures, catalogs and technical publications are available in a searchable format.

Bill Hanvey, director of business development, said of the new site, "As a truly global company, we are now able to offer our visitors both local and worldwide information about our services and products. This is part of our initiative to standardize the look and feel of our collective web sites around the world; offering the consumer consistency and the most up-to-date product information regardless of their home location."

The new site can still be accessed through the existing company's web-sites, [www.replaceyourbearings.com](http://www.replaceyourbearings.com) and [www.lukclutch.com](http://www.lukclutch.com).

## AMI Accepting Applications for Six Scholarships

The Automotive Management Institute (AMI) is accepting applications for six scholarships this year; three help recipients attend the 2009 International Autobody Congress & Exposition (NACE) in Las Vegas, November 4-7:

\$1000 Emil Stanley Merit Award — awarded to an individual from an Automotive Service Association (ASA) Collision Division member-business in good standing to improve business skills through management education.

\$1000 BodyShop Business

Magazine Scholarship — established by AMI's resource development effort, EXCEL, with Babcox Publications, for an ASA Collision Division member-business in good standing to improve business skills through management education.

Gale Westerlund/Richard Cossette Memorial Scholarship — offered together with ASA to honor the contributions made to AMI, ASA and the collision repair industry.

The remaining annual scholarships help cover expenses to attend the Congress of Automotive Repair and Service (CARS) in Las Vegas, Nov. 4-7:

\$1000 Tom B. Babcox Memorial Scholarship — established by EXCEL, with Babcox Publications, for an ASA Mechanical Division member-business in good standing to improve business skills through management education.

Automotive Video Inc. (AVI) Educational Scholarship — established by EXCEL, with AVI. This year's event will fund three \$1000 scholarships to attend CARS 2009.

\$1000 Zurich "High Octane" Scholarship — established by EXCEL, with Zurich (formerly Universal Underwriters Group), for an ASA Mechanical Division member-business in good standing to improve business skills through management education.

To request a scholarship application, call AMI at (800) 272-7467, ext. 241, or fill out an application on line at [www.amionline.org](http://www.amionline.org). Applications must be received by August 14, 2009. Winners will be notified by September 15, 2009.

## ProfitBoost, Demandforce Team Up to Serve Shops

### Software Partnership Aims to Increase Productivity

ProfitBoost LLC, a leading maker of automotive shop management software, announced its partnership with Demandforce, Inc., the leading provider of customer demand generating software for automotive shops and other service-based businesses. The strategic alliance between Demandforce and ProfitBoost will allow automotive repair shops to leverage both solutions to increase profitability and stimulate demand for their products and ser-

VICES.

According to ProfitBoost CEO, Scott Johnson, "Demandforce has demonstrated proven results with many of our existing customers. We believe there's a great opportunity to help all of our shops increase the number of cars they service on a weekly basis, as well as their bottom line."

The partnership will help shops keep their customers up to date on scheduled and unscheduled maintenance requirements. Together the companies aim to increase weekly car counts and develop a more consistent stream of profits for automotive shops using their systems.

"The ProfitBoost shops that are using our system are achieving fantastic results," said Demandforce Vice President, Sam Osman. "The integration of ProfitBoost's system with our platform gives shops a powerful tool in scheduling appointments and increasing their profitability."

ProfitBoost's patented PIF Pro solution helps shops optimize parts and labor needs to achieve the greatest profitability. Demandforce has transformed how many automotive shops communicate with customers to stimulate demand, including maintenance reminders, appointment confirmations, and their patent-pending, two-way text-messaging, which allows customers to confirm appointments via text-messaging.

For more information, visit [www.ProfitBoost.com](http://www.ProfitBoost.com) and [www.demandforce.com](http://www.demandforce.com).

## Steve Bodofsky Introduces His New Web Site... Finally!

Marketing and communications consultant Steve Bodofsky is pleased to announce the introduction his new web site, [www.myadcopy.com](http://www.myadcopy.com).

"All these years I've been helping other people develop a web presence for their companies," says Steve, "yet somehow I never managed to get around to creating one for myself. What was that expression about the cobbler's children going barefoot?"

Steve is better known as GEARS's senior editor. He writes a number of technical and management articles that grace these pages, including most com-

The image shows a screenshot of the Steve Bodofsky Productions website. At the top, it says "Marketing and Technical Communications" and "Steve Bodofsky Productions". Below that, it lists the address "389 Clear Road, Southampton, PA 18966" and the phone number "215-357-3699". The main heading is "Steve Bodofsky Productions Technical Communication Services". A quote reads: "Great instructions can make your product; poor instructions can kill it faster than anything else." Below this, there are several paragraphs of text and images of product manuals. The text discusses the importance of clear instructions and offers services to improve them. Images include various manuals and a person working on a car.

pany profiles. He often ghosts articles for ATRA's senior staff, and he edits nearly all of the articles before publication in *GEARS*.

"Steve's my not-so-secret weapon," explains *GEARS* Managing Editor Rodger Bland. "I need an article pared down or stretched to fit, Steve's my go-to guy. And when I need to fill a page with a deadline looming, all I have to do call him with a few talking points; I'll often have my article by the end of the day."

Steve writes for all size companies. He's done work for international corporations such as Transtar and Parker-Hannifin; meanwhile he recently wrote and designed a web site for a local repair shop ([www.lenshartsvillegarage.com](http://www.lenshartsvillegarage.com)).

And he's not just an automotive writer; Steve's poem, *The Rainbow Bridge* ([www.newrainbowbridge.com](http://www.newrainbowbridge.com)), has been licensed and reprinted by individuals and companies around the globe.

If you'd like to discuss a marketing or technical project with Steve, call him at 215-357-3699, or visit him on the web at [www.myadcopy.com](http://www.myadcopy.com).

## Transtar Industries Expands Product Line to Include Standard and Transfer Case Units

Transtar Industries, Inc., the premier provider of world-class driveline solutions, has extended their product line to include Standard Transmission and Transfer Case Units.

"At Transtar we consider ourselves more than just a parts distributor," states Tom DeMille, Vice President of Sales

## POWER INDUSTRY NEWS

and Branch Operations. “We believe that we are our customers’ partner in business. As partners, it is important for us to keep a constant finger on the pulse of our industry and marketplace.” DeMille continues. “In a recent survey, we learned that almost 30% of our customers purchase Full Standard Units rather than rebuild them. We believe that by offering Standard and Transfer Case Units, we are offering a total driveline solution to these customers.”

Transtar’s Standard and Transfer Case Units are covered by a 18-Month, 18,000-Mile Warranty, and are rebuilt to the standards that Transtar customers have come to expect when they purchase a Transtar product that carries the Transtar Seal of Quality. An extended warranty is also available.

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### Transtar Industries Hosts Customer Appreciation Day

Transtar Industries, Inc., the premier provider of world-class driveline solutions, invited Cleveland-area customers to a very special event at their headquarters in Cleveland, Ohio last month. On June 11, customers were able to tour the offices and warehouse, and observe the assembly of Transtar’s



Joan Blum, Bob Gerberich, Greg Gyllstrom

flagship product, premium Rebuilder Kits.

Transtar’s very first customer, Bob Gerberich of Wadsworth Transmissions, was among those in attendance. “Mr. Gerberich has been a loyal Transtar customer from the very beginning,” said Greg Gyllstrom, President and CEO. “It was an honor to meet him, and all of the customers who attended our event.”

“It was wonderful to be able to express our appreciation to so many customers at once,” said Neil Sethi, Group Vice President, Transtar Distribution Group. “Meeting customers in a more personal setting gives us the unique opportunity to really delve into the issues they’re facing today, and optimize driveline solutions to meet their changing needs.”

After the tour, customers were treated to a delicious meal served by members of the sales team and support staff, and each customer received a gift bag in appreciation for their business. One lucky customer, Gary Early from Transmission Barn in Wellsburg, West Virginia, won the grand prize: a Tom Tom GPS unit. Gary drove over 125 miles to attend this event on the day before his birthday, and he was very glad that he did!

For more information about Transtar Industries, Inc., visit their web site at [www.transtar1.com](http://www.transtar1.com).

### Raybestos Powertrain Sees Progress In 2009

*Continual R&D Investment, Innovative Products, and Successful Integration of Friction Holdings Strengthen Company’s Market Position*  
Crawfordsville, 2009—Raybestos

Powertrain, a leading national manufacturer and supplier of premium OE and aftermarket transmission parts, has reported significant progress in the first six months of 2009 despite one of the most difficult automotive industry environments in recent years. This year, the company has increased capacity, upgraded its technical center facilities in Crawfordsville, Indiana, and developed a

stronger foothold in the aftermarket and OE marketplace.

“We are pleased by the progress made since the beginning of the year,” said Raybestos Powertrain CEO Daniel Gaston. “Our company is stable and growing, and has not had an unprofitable quarter since 1990. This year, we have maintained that performance, strengthening our customer relationships and fulfilling all of our service agreements.”

Raybestos Powertrain continues to invest heavily in research and development, developing innovative product solutions for a range of standard, heavy duty and high performance automotive applications. The integration of Friction Holdings in June 2009 and manufacturing of the clutch and brake plates and adhesive products formerly produced by the company, has complemented the existing Raybestos Powertrain product line and expanded its market presence.

“Our new additions and the enduring popularity of products like our Z Pak™ clutch system will keep Raybestos Powertrain the industry leader it has always been,” said Raybestos Powertrain President John Butz. “We will continue to respond to our customers’ needs and industry trends alike by expanding our product offerings and materials technologies while pursuing potential acquisitions and growing organically. Now perhaps more than ever, we are upbeat about the road ahead.”



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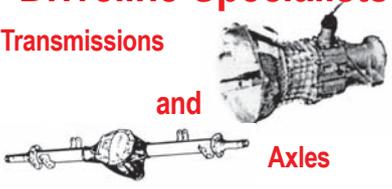
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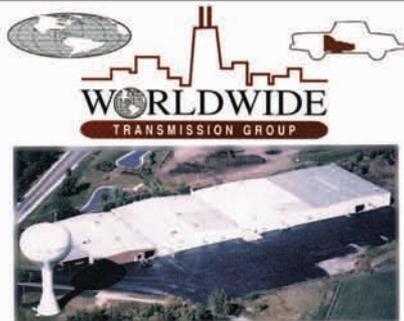
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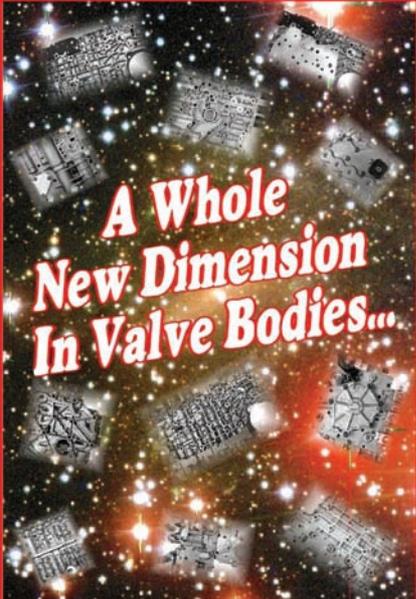
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**HELP WANTED:** Reseda, California – Large 6 shop chain in Southern California is looking for a diagnostician, ability to test drive, strong electrical skills. If you are a self motivated, team player, I would appreciate an

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**HELP WANTED:** Twin Cities Transmission in Niceville, FL is looking for a SwingMan. Medical available! We work 5 days. Please, call Brandy at (850) 729-6629. You can also email or fax your resume to tctransmission@embarqmail.com or fax (850) 729-1529.  
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# CALENDAR

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2009

8/8/09	Los Angeles, CA
8/15/09	Albuquerque, NM
8/22/09	Cincinnati, OH
8/29/09	Chicago, IL
9/12/09	Billings, MT

10/3/09	Portland, OR
10/17/09	New York, NY
10/29-11/1/09	ATRA's Powertrain Expo
11/7/09	Baltimore, Maryland

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