



Looking for the Facts on the 45RFE

The goal of the project was simple: Provide up-to-date information for the 45RFE transmission. I soon learned that this project wasn't going to be easy.



Figure 1: Computer Connectors
The PCM wiring harness has four connectors, numbered 1 to 4.

During my tenure as a technical advisor on the ATRA technical support HelpLine, I've come to realize that accurate information is hard to come by for most repair shops. I get a lot of calls related to the availability of general information, ranging from the simple discussion about transmission operation to the most complex problems involving computer system diagnosis.

Much of the information requested is available through normal resources, such as factory repair manuals; after-market repair manuals, such as Chilton, Mitchell and Motors; industry service

bulletins; local libraries; or even through the internet. There are also a few online or CD-driven information systems available to the automotive repair industry.

With all this information available, I wondered why it was so hard for many repair shops to gain access to it. Well, my journey back into the shop has really opened my eyes to what the repair shops are fighting just to get the basic information they need to repair vehicles properly.

The Initial Road Test

My journey back into the shop

began like most projects, with an idea, a plan of execution and a library of technical information to complete the project. The goal of the project was simple: Provide up-to-date information for the 45RFE transmission. I soon learned that this project wasn't going to be easy.

I started by procuring a new 2003 Dodge R1500 truck with a 4.7L engine and a 45RFE transmission. I picked up the project vehicle and drove it back to the shop. During this impromptu road test, I noticed the transmission shift timing and feel were different than I was used to with other transmissions.



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PART #4001

SMART BLEND Versus Lubegard ATF Protectant

In 2000-2001, various tests were performed on Lubegard ATF protectant using Dexron III and Mercon V as the base fluid. Testing occurred over a 24 month period on several vehicles, in excess of 50,000 miles. After testing was completed there was no measured drop in the transmission fluids operating temperature when the Lubegard product was added. The fluid temperature was measured using a temperature gauge located in the transmission pan, therefore proving Lubegard did not meet its claim that Lubegard ATF protectant can reduce heat in the transmission up to 40°F.



Technology Lubegard uses a derivative of vegetable oil in its chemistry. Brook Field Viscosity tests prove vegetable oil base stocks become "solids" at -40°F, therefore eliminating the use of them for an ATF factory fill by OEMs. In spite of Lubegards negative advertising about zinc being bad for transmissions, they still actively market and sell their own Dr. Tranny Instant shudder fixx which contains in excess of 9,999 PPM of zinc.

Less Value Lubegard requires two products- ATF Protectant and instant shudder fixx. This can result in a potential extra cost of up to 60% more if used versus Smart Blend.

Performance Lubegard requires the vehicle to be driven for multiple miles and/or overnight penetration.

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Figure 2: Back Probe

The shifts were fairly soft; sometimes I couldn't even tell whether the transmission had shifted. And the shift timing was kind of erratic. The transmission would shift either earlier or later than I was used to, depending on what gear the computer system requested.

Realizing that I didn't know a whole lot about this new transmission's operation, I wasn't concerned about the shifts. I continued back to the shop, ready to begin my project.

Looking for the Codes... and the Computer

Back at the shop, I gathered up all the equipment and technical information I needed and got ready to start. I was confident this was going to be easy.

The first thing I did was hop into the cab and connect my scan tool to check for codes. But my scan tool wouldn't communicate with the vehicle's computer system: "no communication," it said. I thought to myself "what do you mean... no communication?" I checked the scan tool and found that I had the most up-to-date cartridge available for this vehicle.

So I switched over to the generic

side of the scan tool. That allowed me to communicate with the vehicle's computer system. I was able to check for generic codes and was able to monitor only a few of the inputs to the computer system. Transmission information wasn't available through the scan tool. For now, I still wasn't too worried about the communication problem.

The next step was to locate the Transmission Control Module (TCM) and gain access to the TCM connector. The purpose of this project was to provide TCM pin charts, with values for the input systems to the TCM. After spending about 30 minutes looking for the 60-pin TCM — which was supposed to be located in the right rear engine compartment — I came across a control module with 152 pins. "Hmmm," I said, "where's the TCM?" According to my library of technical information, the TCM should have been located in the engine compartment, but if it was, I couldn't find it.

After exhausting another 30 minutes of searching through the engine compartment, underneath the dash, and throughout the vehicle, I was frustrated to say the least. What a nightmare this

simple project was becoming. Fortunately, I have friends at the local dealerships who would be willing to help. I gave them a call and talked to the transmission technician, who readily agreed to assist me with anything I needed. So I drove down to my local dealership with the hope of gathering top secret information on the TCM location.

The Search for the TCM Continues

I arrived at the dealership knowing that if anybody had the information I was looking for, this would be the place to find it. I walked into the dealership service department and was greeted by a very friendly service advisor. After a brief conversation, he escorted me to the transmission area where their transmission technician was waiting.

After the normal greetings and catching up on things, the technician dug out his factory manuals to show me the TCM location. A quick look at the factory manuals revealed that we both had the same information. The TCM should be located in the right rear of the engine compartment. Again, frustrated with the same information as before, I

talked the technician into showing me the TCM on one of the new vehicles on the lot. After looking at three 2003 R1500 4.7L trucks, we still couldn't locate the TCM. So we both walked back to his area, shaking our heads and muttering, "Hmmm, I wonder where the TCM is?"

We return to the transmission bay, both stumped as to the location of the TCM. Then, just as the frustration was mounting and the project was in jeopardy of falling apart, the engine performance technician walked by and asked what was going on. After a brief discussion, he explained that in the middle of 2002, the TCM was integrated into the PCM. The engine performance technician said that the manuals were printed before the TCM integration, which is why the information wasn't in the manuals. Makes sense.

So I followed the engine performance technician back to his bay area, where he provided me with a copy of the PCM location and pin identification chart. Needless to say, I was pretty happy with this new discovery. As I left



Computer Location

the dealership, I thought about how lucky I was to have friends in the local dealerships who were willing to help me. Without them, I'd never have been

able to find the information I needed. I drove back to our shop with a smile, knowing that I was now armed with the information I had been searching for.

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POWERTRAIN CONTROL MODULE C1 (BLACK)			
Pin#	Function	Conditions	Signal
9	Ground	constant ground	<0.1 VDC
11	Fused ignition switch out-put	ignition switch on	B+
12	Fused ignition switch out-put	ignition switch on	B+
13	VSS signal	a/c volts increase w/whl speed	
18	Ground	constant ground	<0.10 VDC
29	Fused B+	constant B+	B+
30	Fused ignition switch out-put	ignition switch on	B+
POWERTRAIN CONTROL MODULE C4 (GREEN)			
Pin#	Function	Conditions	Signal
1	Overdrive solenoid control	energized when commanded	B+
2	4C solenoid control	energized when commanded	B+
3	(5.7L) TPS #1 output	not used on 4.7L	
4	Pressure control solenoid control	varies with throttle input	idle: 13.0VDC wot: 2.8VDC
5	(5.7L) apps #1 output	not used on 4.7L	
6	2C solenoid control	energized when commanded	B+
7	Torque management request sense	not used on 4.7L	
8	Underdrive solenoid control	energized when commanded	B+
9	(5.7L) sensor ground	not used on 4.7L	
10	LR solenoid control	energized when commanded	B+
11	Pressure control solenoid control	varies with throttle input	idle: 13.0VDC wot: 2.8VDC
12	Ground	constant ground	<0.10 VDC
13	Ground	constant ground	<0.10 VDC
14	Ground	constant ground	<0.10 VDC
15	TRS T1 sensor	depends on TRS position	PRN1-13vdc D- 2 vdc
16	TRS T3 sensor	depends on TRS position	PR2- 13 vdc ND1- 2 vdc
17	Overdrive off switch sensor	cycle switch off/on	cycles between 0 vdc- 12 vdc
18	Transmission control relay control	ignition switch on /no codes present	B+
19	Transmission control relay output	ignition switch on /no codes present	B+
20	4C pressure switch sensor	grounds when 4C commanded on	<0.10 VDC
21	Underdrive pressure switch sensor	grounds when u/d clutch commanded on	<0.10 VDC
22	Overdrive pressure switch sensor	grounds when o/d clutch commanded on	<0.10 VDC
23	Not used		
24	Not used		
25	Not used		
26	TRS T2 sensor	depends on TRS position	P21- 2 vdc RND- 13 vdc
27	Not used		
28	Transmission control relay output	ignition switch on /no codes present	B+
29	LR pressure switch sensor	grounds when L/R clutch commanded on	<0.10 VDC
30	2C pressure switch sensor	grounds when 2C clutch commanded on	<0.10 VDC
31	Line press sensor signal	varies with line pressure rise and fall	
32	Output speed sensor signal	varies with output speed	ACV increases 0.0 acv-15 acv
33	Input speed sensor signal	varies with engine/input speed	idle:4.1 acv 60mph: 10.4 acv
34	Speed sensor ground	constant ground	<0.10 VDC
35	Transmission temperature sensor	varies with transmission temperature	3.5 VDC w/warm
36	Not used		
37	TRS T42 sensor	depends on TRS position	PRN- 2.2 vdc D21-0.8 VDC
38	Transmission control relay output	ignition switch on /no codes present	B+
Powertrain Control Module			

Then, just as the frustration was mounting and the project was in jeopardy of falling apart, the engine performance technician walked by and asked what was going on.

Identifying the Connectors

After returning to the shop, I prepared my equipment and was ready to begin. I quickly located the PCM mounted on the firewall. It's amazing how easy it is to find what you're looking for with the right information.

After removing the air cleaner assembly, it was easy to reach the three PCM mounting bolts. The PCM wiring harness is quite long and the PCM can be moved to the air cleaner mounting area for better access to the PCM con-

nectors.

The PCM wiring harness has four connectors, numbered 1 to 4 (figure 1, page 18). Connector 1 is closest to the two PCM mounting screws; connector 4 is closest to the mounting screws at the bottom of the PCM. Each connector is color-coded. Connector 1 is black, 2 is gray, 3 is white and 4 is green. Connectors 1, 2 and 3 contain all of the engine performance system inputs and outputs.

Connector 4 is solely for the transmission inputs and outputs. In this

(text continued on page 26)

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AIS#	MFG.	APPLICATION	PRICE/ GASKET	QTY/ PACKAGE
820339	Chrysler	Torqueflight 6 (904) .090" thick	1.96 ea.	5
820344	Chrysler	Torqueflight 8 (727) .090" thick	1.96 ea.	5
820350	Chrysler	A404, A413, A470	1.38 ea.	5
820351	Chrysler	A404, 413 Sprocket CVR	1.79 ea.	5
820352	Chrysler	404 FWD Gear Box	1.83 ea.	5
820345	Chrysler	A604 Ultradrive Oil Pan	1.93 ea.	5
820353	Chrysler	A604 Diff Oil Pan	1.57 ea.	5
820354	Chrysler	A604 End Cover	1.43 ea.	5
820355	Chrysler	42LE / A606	2.42 ea.	5
820356	Ford	C-6	1.85 ea.	5
820357	Ford	C-4	1.18 ea.	5
820359	Ford	Jatco 3N71B (17 Bolt)	1.98 ea.	5
820360	Ford	AOT, AOD, FIOD	1.78 ea.	5
820361	Ford	ATX Valve Body Cover	2.10 ea.	5
820362	Ford	ATX Oil Pan	1.90 ea.	5
820346	Ford	A4LD W/4 Notches	1.78 ea.	5
820289	Ford	AXOD Oil Pan (1986-96)	3.78 ea.	5
820323	Ford	AXOD Control Cover (1986-96)	2.56 ea.	5
820394	Ford	AX4S Oil Pan (1996 & up)	5.10 ea.	3
820395	Ford	AX4S Control Cover (1996 & up)	4.35 ea.	3
820364	Ford	Probe 4EAT	1.98 ea.	5
820348	Ford	E4OD (1989-95)	3.10 ea.	5
820396	Ford	4R100 (1996 & up)	5.90 ea.	3
820365	Ford	AODE	3.98 ea.	5
820366	Ford	CD4E Main Control CVR	3.58 ea.	5
820367	Ford	AX4N Oil Pan (Early)	3.98 ea.	5
820397	Ford	AX4N Oil Pan (1995 & up)	6.90 ea.	3
820368	Ford	AX4N Main Control CVR (Early)	3.58 ea.	5
820398	Ford	AX4N Main Control Cover (1995 & up)	5.90 ea.	3
820369	GM	Powerglide	1.98 ea.	5
820370	GM	TH-350, 350C, 250, 250C	1.44 ea.	5
820371	GM	TH-400	1.74 ea.	5
820372	GM	TH-180, 180C	1.82 ea.	5
820373	GM	TH-200, 200C	1.62 ea.	5
820374	GM	T-125, 125C	1.86 ea.	5
820375	GM	TH-125, 125C Sprocket CVR	1.50 ea.	5
820376	GM	TH-200-4R	2.18 ea.	5
820377	GM	TH-440 Side Case Cover	2.24 ea.	5
820349	GM	TH700R4	1.50 ea.	5
820378	GM	TH-440-T4 Oil Pan	2.28 ea.	5
820379	GM	4T60E	2.07 ea.	5
820182	GM	4T80E	2.70 ea.	5
820380	Mitsubishi	KM170 Combo	1.69 ea.	5
820381	Mitsubishi	KM 177	3.00 ea.	5
820382	Mitsubishi	F4A33	1.80 ea.	5
820383	Nissan	RL3F01A, RN3F01A FWD	1.90 ea.	5
820384	Nissan	RE4R03A	1.98 ea.	5
820385	Subaru	4 Spd	2.24 ea.	5
820386	Toyota	3 & 4 Spd. A40, A40D	1.60 ea.	5
820387	Toyota	A-340	2.30 ea.	5
820388	Toyota	A-540-E	2.56 ea.	5
820389	Toyota	A540 93-ON	2.54 ea.	5

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The 4L60E-Late Shift Correction Package 1998 & up (K4L60E-L)

The 4L60E-L Kit helps to eliminate the following problems: ✓ Code 1870 ✓ Delayed engagements ✓ Slide bump 2nd & 3rd ✓ 3-4 clutch burn-up ✓ Help for worn plates ✓ Provides more lube oil ✓ Regular and Heavy duty applications ✓ Improves overall transmission performance

- Includes PWM PowerValve to correct code 1870 problems and still maintain normal computer strategy of the converter.
- Includes oversized checkballs to give new life to the original worn separator plate.



The Chrysler 42/46/47-RE Late Shift Correction Package 1999 & up (K500-618-L)

The Chrysler 42/46/47-RE Late Shift Correction Package helps eliminate the following problems: ✓ Premature band failure ✓ Inadequate line pressure ✓ Slow engagements ✓ Premature clutch failure ✓ Lower 2-3 shift RPM ✓ Full time lube ✓ Rapid fill manual valve ✓ Regular, Heavy Duty, Gas & Diesel

- The governor control valve limits excess governor pressure caused by increased mainline operating pressure needed for Heavy Duty use.
- Allows building the unit for extreme heavy duty applications without fear of getting governor sensor code 1763
- Works on any earlier RE unit, but most beneficial for 1999 & up unit with the latest computer strategy.

The 4L80-E Shift Correction Package (K4L80E)

The 4L80-E Kit helps eliminate the following problems:



- ✓ Runaway high pressure
- ✓ Premature unit failure
- ✓ Erratic pressure rise
- ✓ Shift Solenoid filter blow-out
- ✓ Converter shudder
- ✓ Inconsistent shift feel
- ✓ Includes complete PR valve train
- ✓ Falls out of 4th

- New O-ring sealed end plug for the actuator feed filter bore — helps stop units from falling out of 4th when hot and helps stop wrong gear starts when hot.
- This one kit services all units 1991 thru 2002.

The AXOD-E/AX45 Shift Correction Package (KAXOD-E)

The AXOD-E/AX45 kit helps eliminate the following problems:



- ✓ Delayed shifts
- ✓ Down shift bump
- ✓ Flare on 3-2 down shift
- ✓ Neutrals at a stop
- ✓ Improves overall performance
- ✓ Inadequate lube oil
- ✓ Converter chatter
- ✓ Newly designed boost valve and 2-3 servo regulator valve assembly included
- ✓ Soft or sloppy up-shifts

- Steel 2-3 servo regular valve added to replace a sticky OE. aluminum valve. This sticking valve is often the cause for a neutral condition that occurs after coming to a stop.
- This one kit will service units 1991 - 2002.

The AOD-E/4R70W Shift Correction Package (KAOD-E)

The AOD-E/4R70W Kit helps eliminate the following problems:



- ✓ Second roller clutch failure
- ✓ Soft or sloppy 3-4 shifts
- ✓ Slip bang on takeoff
- ✓ Improves overall performance
- ✓ Soft or sloppy 1-2 shifts
- ✓ Inadequate lube oil
- ✓ 3-4 band failure
- ✓ 3rd clutch failure
- ✓ New steel no-stick solenoid regulator valve added.

- New steel no stick solenoid pressure regulator valve added, helping to stop a neutral bang under heavy throttle take-off.
- New O-ring sealed end plug for the 2-3 shift valve bore, to replace OE. plug that may leak and cause the unit to fall out of 4th or fault on the 2-3 shift.

The E4OD/4R100 Shift Correction Package (KE4OD)

The E4OD/4R100 kit deals with the following problems:



- ✓ Converter shudder
- ✓ Converter burn up
- ✓ Reverse problems
- ✓ Weak shifts
- ✓ Stack shifts
- ✓ Lube problems
- ✓ Front seal blow outs
- ✓ Improves overall performance

- Allows the conversion of PWM lock-up to an On/Off apply operation. This modification delivers a more dependable lube
- New outer accumulator spring added to allow replacement of broken OEM springs
- This one kit services all units 1989 - 2002


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PIN	CIRCUIT	FUNCTION
1	IGN RELAY	IGN CONTROL NO. 8
2	IGN RELAY	IGN CONTROL NO. 7
3	IGN RELAY	IGNITION CONTROL NO. 8
4	IGN RELAY	IGNITION CONTROL NO. 7
5	IGN RELAY	IGNITION CONTROL NO. 7
6	IGN RELAY	IGNITION CONTROL NO. 7
7	IGN RELAY	IGNITION CONTROL NO. 7
8	IGN RELAY	IGNITION CONTROL NO. 7
9	IGN RELAY	IGNITION CONTROL NO. 7
10	IGN RELAY	IGNITION CONTROL NO. 7
11	IGN RELAY	IGNITION CONTROL NO. 7
12	IGN RELAY	IGNITION CONTROL NO. 7
13	IGN RELAY	IGNITION CONTROL NO. 7
14	IGN RELAY	IGNITION CONTROL NO. 7
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35	IGN RELAY	IGNITION CONTROL NO. 7
36	IGN RELAY	IGNITION CONTROL NO. 7
37	IGN RELAY	IGNITION CONTROL NO. 7
38	IGN RELAY	IGNITION CONTROL NO. 7
39	IGN RELAY	IGNITION CONTROL NO. 7

PCM-C1

Now we're ready to dig into the meat and potatoes of this article: the PCM pin tests. The following are illustrations of the PCM connectors with pin and circuit identifications, wire colors, and circuit function information.

article, we will mostly be looking at connector 4 for our inputs and outputs. You should be aware that the PCM shares some of the engine performance inputs with the transmission side of the PCM, to maximize transmission efficiency and operation. We'll look at these inputs as well.

Each of the PCM connectors has a shield installed over them to prevent water and dirt intrusion. You can remove these shields easily to gain

access to the connector terminals, and are perfect for backprobing (figure 2, page 20). Backprobing and watching actual inputs and outputs is easy, once you get to this point. To make things even easier, the connectors have the terminal identification numbers listed on the back of the connectors. Someone must have been thinking of us.

The Pin Tests

Now we're ready to dig into the meat and potatoes of this article: the PCM pin tests. The following are illustrations of the PCM connectors with pin and circuit identifications, wire colors, and circuit function information. Most of this information is being provided for your own information. Many of the inputs and outputs from connectors 1, 2 and 3 aren't related to transmission operation.

The PCM connector we will be discussing most is connector 4, or the green connector. Performing the PCM pin voltage checks with the PCM sitting on the fender or air cleaner support is

easy, once you become familiar with the connector terminal locations.

You should start any good PCM pin test with power and ground circuits. These circuit tests are easy because they have no variables; either you have power or you don't, and all ground circuits are constant. We'll start by checking the power sources. The PCM gets its primary power source through connector 1 at pin 29. This is fused battery power. Fused ignition power is provided through connector 1 at pins 11, 12 and 30. These are the four power sources to the PCM.

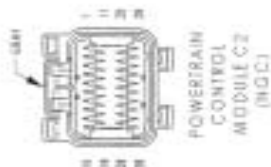
The ground circuits for the PCM are located in connector 1 at pins 9 and 18. The remaining ground circuits for the PCM are in connector 4 at pins 12, 13 and 14. The power and ground circuit tests should go very quickly.

The next step is to check the transmission relay control. The transmission relay control circuit energizes the transmission relay, which in turn powers up the rest of the transmission system. The transmission relay control is located at

(text continued on page 28)

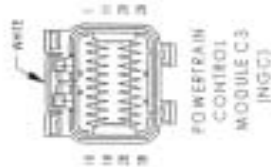
POWERTRAIN CONTROL MODULE (PCM)

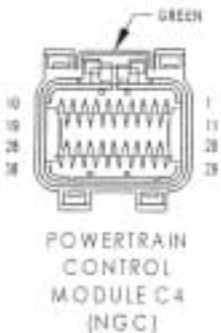
CPA	HEIGHT	FUNCTION
1	900 ITHW00	COIL CONTROL NO.0
2	900 ITHW01	COIL CONTROL NO.1
3	900 ITHW02	COIL CONTROL NO.2
4	900 ITHW03	COIL CONTROL NO.3
5	900 ITHW04	COIL CONTROL NO.4
6	900 ITHW05	COIL CONTROL NO.5
7	900 ITHW06	COIL CONTROL NO.6
8	900 ITHW07	COIL CONTROL NO.7
9	900 ITHW08	COIL CONTROL NO.8
10	900 ITHW09	COIL CONTROL NO.9
11	900 ITHW10	COIL CONTROL NO.10
12	900 ITHW11	COIL CONTROL NO.11
13	900 ITHW12	COIL CONTROL NO.12
14	900 ITHW13	COIL CONTROL NO.13
15	900 ITHW14	COIL CONTROL NO.14
16	900 ITHW15	COIL CONTROL NO.15
17	900 ITHW16	COIL CONTROL NO.16
18	900 ITHW17	COIL CONTROL NO.17
19	900 ITHW18	COIL CONTROL NO.18
20	900 ITHW19	COIL CONTROL NO.19
21	900 ITHW20	COIL CONTROL NO.20
22	900 ITHW21	COIL CONTROL NO.21
23	900 ITHW22	COIL CONTROL NO.22
24	900 ITHW23	COIL CONTROL NO.23
25	900 ITHW24	COIL CONTROL NO.24
26	900 ITHW25	COIL CONTROL NO.25
27	900 ITHW26	COIL CONTROL NO.26
28	900 ITHW27	COIL CONTROL NO.27
29	900 ITHW28	COIL CONTROL NO.28
30	900 ITHW29	COIL CONTROL NO.29
31	900 ITHW30	COIL CONTROL NO.30
32	900 ITHW31	COIL CONTROL NO.31
33	900 ITHW32	COIL CONTROL NO.32
34	900 ITHW33	COIL CONTROL NO.33
35	900 ITHW34	COIL CONTROL NO.34
36	900 ITHW35	COIL CONTROL NO.35
37	900 ITHW36	COIL CONTROL NO.36
38	900 ITHW37	COIL CONTROL NO.37
39	900 ITHW38	COIL CONTROL NO.38
40	900 ITHW39	COIL CONTROL NO.39
41	900 ITHW40	COIL CONTROL NO.40
42	900 ITHW41	COIL CONTROL NO.41
43	900 ITHW42	COIL CONTROL NO.42
44	900 ITHW43	COIL CONTROL NO.43
45	900 ITHW44	COIL CONTROL NO.44
46	900 ITHW45	COIL CONTROL NO.45
47	900 ITHW46	COIL CONTROL NO.46
48	900 ITHW47	COIL CONTROL NO.47
49	900 ITHW48	COIL CONTROL NO.48
50	900 ITHW49	COIL CONTROL NO.49
51	900 ITHW50	COIL CONTROL NO.50
52	900 ITHW51	COIL CONTROL NO.51
53	900 ITHW52	COIL CONTROL NO.52
54	900 ITHW53	COIL CONTROL NO.53
55	900 ITHW54	COIL CONTROL NO.54
56	900 ITHW55	COIL CONTROL NO.55
57	900 ITHW56	COIL CONTROL NO.56
58	900 ITHW57	COIL CONTROL NO.57
59	900 ITHW58	COIL CONTROL NO.58
60	900 ITHW59	COIL CONTROL NO.59
61	900 ITHW60	COIL CONTROL NO.60
62	900 ITHW61	COIL CONTROL NO.61
63	900 ITHW62	COIL CONTROL NO.62
64	900 ITHW63	COIL CONTROL NO.63
65	900 ITHW64	COIL CONTROL NO.64
66	900 ITHW65	COIL CONTROL NO.65
67	900 ITHW66	COIL CONTROL NO.66
68	900 ITHW67	COIL CONTROL NO.67
69	900 ITHW68	COIL CONTROL NO.68
70	900 ITHW69	COIL CONTROL NO.69
71	900 ITHW70	COIL CONTROL NO.70
72	900 ITHW71	COIL CONTROL NO.71
73	900 ITHW72	COIL CONTROL NO.72
74	900 ITHW73	COIL CONTROL NO.73
75	900 ITHW74	COIL CONTROL NO.74
76	900 ITHW75	COIL CONTROL NO.75
77	900 ITHW76	COIL CONTROL NO.76
78	900 ITHW77	COIL CONTROL NO.77
79	900 ITHW78	COIL CONTROL NO.78
80	900 ITHW79	COIL CONTROL NO.79
81	900 ITHW80	COIL CONTROL NO.80
82	900 ITHW81	COIL CONTROL NO.81
83	900 ITHW82	COIL CONTROL NO.82
84	900 ITHW83	COIL CONTROL NO.83
85	900 ITHW84	COIL CONTROL NO.84
86	900 ITHW85	COIL CONTROL NO.85
87	900 ITHW86	COIL CONTROL NO.86
88	900 ITHW87	COIL CONTROL NO.87
89	900 ITHW88	COIL CONTROL NO.88
90	900 ITHW89	COIL CONTROL NO.89
91	900 ITHW90	COIL CONTROL NO.90
92	900 ITHW91	COIL CONTROL NO.91
93	900 ITHW92	COIL CONTROL NO.92
94	900 ITHW93	COIL CONTROL NO.93
95	900 ITHW94	COIL CONTROL NO.94
96	900 ITHW95	COIL CONTROL NO.95
97	900 ITHW96	COIL CONTROL NO.96
98	900 ITHW97	COIL CONTROL NO.97
99	900 ITHW98	COIL CONTROL NO.98
100	900 ITHW99	COIL CONTROL NO.99



REGISTRATION CENTER, MODULE C (NCC)

LAW	RELAY	POWER WHEN STARTER ENGAGED, SIGNAL SOURCE
1	-	-
2	-	-
3	K31 100V 5L	ALD RELAY CONTROL
4	-	-
5	K32 100V 5L (4 TL)	SIG START CONTROL
6	K33 100V 5L	CONSUMER ON RELAY CONTROL
7	K34 100V 5L (4 TL)	SIG POWER SUPPLY
8	K100 100V 5L (4 TL)	HALD SOLARNOO CONTROL
9	K101 100V 5L	102 102 HEATER CONTROL
10	K102 100V 5L (4 TL)	102 102 HEATER CONTROL
11	K103 100V 5L	AC CLUTCH RELAY CONTROL
12	K104 100V 5L (4 TL)	SIG VACUUM CONTROL
13	-	-
14	K35 100V 5L (4 TL)	BRAKE SWITCH NO 2 SIGNAL
15	K36 100V 5L (4 TL)	SIG SWITCH RETURN
16	K37 100V 5L (4 TL)	APPS NO 1 RETURN
17	K38 100V 5L (4 TL)	APPS NO 2 RETURN
18	K39 100V 5L (4 TL)	SIG SWITCH NO 2 SIGNAL
19	K40 100V 5L (4 TL)	ALD RELAY OUTPUT
20	K41 100V 5L (4 TL)	100V PUMP SIG. SIGNAL
21	K42 100V 5L	100V TPA SIGNAL (PAI SIGNAL)
22	K43 100V 5L	100V SWITCH SIGNAL
23	K44 100V 5L	100V SWITCH SIGNAL
24	-	-
25	K45 100V 5L (4 TL)	APPS NO 1 SIGNAL
26	-	-
27	-	-
28	K46 100V 5L	ALD RELAY OUTPUT
29	K47 100V 5L	100V PUMP SIG. CONTROL
30	K48 100V 5L	100V SWITCH SIGNAL
31	K49 100V 5L	100V SWITCH SIGNAL
32	K50 100V 5L	100V TPA SIGNAL
33	K51 100V 5L	100V TPA SIGNAL
34	K52 100V 5L	100V TPA SIGNAL
35	K53 100V 5L	100V TPA SIGNAL
36	K54 100V 5L	100V TPA SIGNAL
37	K55 100V 5L	100V TPA SIGNAL
38	K56 100V 5L	100V TPA SIGNAL
39	K57 100V 5L	100V TPA SIGNAL
40	K58 100V 5L	100V TPA SIGNAL
41	K59 100V 5L	100V TPA SIGNAL
42	K60 100V 5L	100V TPA SIGNAL
43	K61 100V 5L	100V TPA SIGNAL
44	K62 100V 5L	100V TPA SIGNAL
45	K63 100V 5L	100V TPA SIGNAL
46	K64 100V 5L	100V TPA SIGNAL
47	K65 100V 5L	100V TPA SIGNAL
48	K66 100V 5L	100V TPA SIGNAL
49	K67 100V 5L	100V TPA SIGNAL
50	K68 100V 5L	100V TPA SIGNAL
51	K69 100V 5L	100V TPA SIGNAL
52	K70 100V 5L	100V TPA SIGNAL
53	K71 100V 5L	100V TPA SIGNAL
54	K72 100V 5L	100V TPA SIGNAL
55	K73 100V 5L	100V TPA SIGNAL
56	K74 100V 5L	100V TPA SIGNAL
57	K75 100V 5L	100V TPA SIGNAL
58	K76 100V 5L	100V TPA SIGNAL
59	K77 100V 5L	100V TPA SIGNAL
60	K78 100V 5L	100V TPA SIGNAL
61	K79 100V 5L	100V TPA SIGNAL
62	K80 100V 5L	100V TPA SIGNAL
63	K81 100V 5L	100V TPA SIGNAL
64	K82 100V 5L	100V TPA SIGNAL
65	K83 100V 5L	100V TPA SIGNAL
66	K84 100V 5L	100V TPA SIGNAL
67	K85 100V 5L	100V TPA SIGNAL
68	K86 100V 5L	100V TPA SIGNAL
69	K87 100V 5L	100V TPA SIGNAL
70	K88 100V 5L	100V TPA SIGNAL
71	K89 100V 5L	100V TPA SIGNAL
72	K90 100V 5L	100V TPA SIGNAL
73	K91 100V 5L	100V TPA SIGNAL
74	K92 100V 5L	100V TPA SIGNAL
75	K93 100V 5L	100V TPA SIGNAL
76	K94 100V 5L	100V TPA SIGNAL
77	K95 100V 5L	100V TPA SIGNAL
78	K96 100V 5L	100V TPA SIGNAL
79	K97 100V 5L	100V TPA SIGNAL
80	K98 100V 5L	100V TPA SIGNAL
81	K99 100V 5L	100V TPA SIGNAL
82	K100 100V 5L	100V TPA SIGNAL
83	K101 100V 5L	100V TPA SIGNAL
84	K102 100V 5L	100V TPA SIGNAL
85	K103 100V 5L	100V TPA SIGNAL
86	K104 100V 5L	100V TPA SIGNAL
87	K105 100V 5L	100V TPA SIGNAL
88	K106 100V 5L	100V TPA SIGNAL
89	K107 100V 5L	100V TPA SIGNAL
90	K108 100V 5L	100V TPA SIGNAL
91	K109 100V 5L	100V TPA SIGNAL
92	K110 100V 5L	100V TPA SIGNAL
93	K111 100V 5L	100V TPA SIGNAL
94	K112 100V 5L	100V TPA SIGNAL
95	K113 100V 5L	100V TPA SIGNAL
96	K114 100V 5L	100V TPA SIGNAL
97	K115 100V 5L	100V TPA SIGNAL
98	K116 100V 5L	100V TPA SIGNAL
99	K117 100V 5L	100V TPA SIGNAL
100	K118 100V 5L	100V TPA SIGNAL





CW	CIRCUIT	FUNCTION
1	T89 100R (4.7L)	OVERDRIVE SOLENOID CONTROL
2	T159 180G/WT (4.7L)	4C SOLENOID CONTROL
3	Y267 180G/WT (5.7L)	TPS NO. 1 OUTPUT
4	T140 18VTLG (4.7L)	PRESSURE CONTROL SOLENOID CONTROL
5	Y208 180B/YL (5.7L)	APPS NO. 1 OUTPUT
6	T119 18WT/DB (4.7L)	2C SOLENOID CONTROL
7	T110 18PL/DB (5.7L)	TORQUE MANAGEMENT REQUEST SENSE
8	T59 18PK (4.7L)	UNDERDRIVE SOLENOID CONTROL
9	Y209 18TNBK (5.7L)	SENSOR GROUND
10	T129 18LG (4.7L)	LR SOLENOID CONTROL
11	T118 18YL/DB (4.7L)	PRESSURE CONTROL SOLENOID CONTROL
12	Y210 18YL/WD (5.7L EATX)	RPM SIGNAL
12	Z13 16BK/RO (4.7L)	GROUND
13	Z13 16BK/RO (4.7L)	GROUND
14	Z13 16BK/RO (4.7L)	GROUND
15	T1 18LG/DR (4.7L)	THS T1 SENSE
16	T3 18VT (4.7L)	TR5 T3 SENSE
17	T6 18OR/WT (4.7L)	OVERDRIVE OFF SWITCH SENSE
18	K30 18PK (4.7L)	TRANSMISSION CONTROL RELAY CONTROL
19	T16 16RD (4.7L)	TRANSMISSION CONTROL RELAY OUTPUT
20	T48 180B (4.7L)	4C PRESSURE SWITCH SENSE
21	T29 18GY (4.7L)	UNDERDRIVE PRESSURE SWITCH SENSE
22	T9 18OR/BK (4.7L)	OVERDRIVE PRESSURE SWITCH SENSE
23	-	-
24	-	-
25	-	-
26	T4 18PK/OR (4.7L)	TR5 T2 SENSE
27	-	-
28	T16 16RD (4.7L)	TRANSMISSION CONTROL RELAY OUTPUT
29	T50 18DG (4.7L)	LOW/REVERSE PRESSURE SWITCH SENSE
30	T147 18LB (4.7L)	2C PRESSURE SWITCH SENSE
31	T38 18VT/TN (4.7L)	LINE PRESSURE SENSOR SIGNAL
32	T14 18LG/WT (4.7L)	OUTPUT SPEED SENSOR SIGNAL
33	T52 18RO/BK (4.7L)	INPUT SPEED SENSOR SIGNAL
34	T13 18DB/BK (4.7L)	SPEED SENSOR GROUND
35	T54 18VT (4.7L)	TRANSMISSION TEMPERATURE SENSOR SIGNAL
36	-	-
37	T42 18VT/WT (4.7L)	TR5 T42 SENSE
38	T16 16RD (4.7L)	TRANSMISSION CONTROL RELAY OUTPUT

PCM-C4

pin 18 in connector 4. With the key on, you should have system voltage to this terminal. If pin 18 doesn't have system voltage, check the computer for codes or for being in failsafe. This circuit must energize the transmission relay for the relay to provide power to the rest of the transmission computer system.

With the transmission relay energized, system power is sent to pins 19, 28 and 38 in connector 4. Once you've checked the power and ground circuits, you know whether the PCM is powered up and ready to go. The remaining

inputs and outputs are variable. This means the voltage on each of the remaining circuits varies, depending on the input. The pin chart provides the varying voltages for each of the remaining circuits related to the transmission operation.

The Journey Comes to an End

By now you should have a better understanding of Chrysler's new integrated PCM system. Armed with this information, it should be easy to check all of the inputs and outputs for the

transmission side of the PCM.

As you know, accurate information can be hard to come by these days. If it wasn't for the help of fellow technicians throughout the industry, I wouldn't have been able to complete this project. It's important to remember that we aren't alone: There are a lot of us working on vehicles. We should all be working together to help each other do a better job. Remember: together, we can keep those trannys rolling.

