



ATRA Diagnostic Procedures



This material should be used to aid you in your diagnostic process. Please make sure you have filled out the "Automatic Transmission Diagnostic Worksheet" prior to contacting the ATRA HotLine.

ATRA HotLine Ph# 1-877-287-2832

Preliminary Inspection

The following items must be checked prior to beginning the diagnostic procedures:

Know and Understand the Concern

In order to correctly diagnose a concern, first understand the customer complaint or condition. Customer contact may be required in order to begin to verify the concern. Understand the conditions as to when the concern occurs, for example:

- Hot or cold vehicle temperature.
- Hot or cold ambient temperature.
- Vehicle driving conditions.
- Vehicle loaded/unloaded.

After understanding when and how the concern occurs, proceed to Verification of Condition.

Verification of Condition

This section provides information that must be used in both determining the actual cause of customer concerns and carrying out the appropriate procedures.

The following procedures must be used when verifying customer concerns for the transmission.

Determine Customer Concern

NOTE: Some transmission conditions can cause engine concerns. An electronic pressure control short circuit can cause engine misfiring. The torque converter clutch not disengaging will stall the engine.

Determine customer concerns relative to the vehicle use and driving conditions, paying attention to the following items:

- Hot or cold vehicle operating temperature.
- Hot or cold ambient temperatures.
- Type of terrain.
- Vehicle loaded/unloaded.
- City/highway driving.
- Upshift.
- Downshift.
- Coasting.
- Engagement.
- Noise/vibration — check for dependencies, RPM, vehicle speed, shift, gear, range, or temperature dependent.



ATRA Diagnostic Procedures



Check Fluid Level and Condition

CAUTION: The vehicle should not be driven if the fluid level indicator shows the fluid below the DO NOT DRIVE mark or internal failure could result. Under normal circumstances, the fluid level should be checked during normal maintenance. If the transmission starts to slip, shifts slowly, or has signs of fluid leaking, the fluid level should be checked.

1. Place the range selector lever in the PARK position.
2. Wipe the fluid level indicator cap and remove the indicator.
3. Wipe the indicator with a clean cloth.
4. Install the indicator back in the filler tube until it is fully seated, then remove the indicator. The fluid level should be within the normal operating temperature range.

High Fluid Level

A fluid level that is too high may cause the fluid to become aerated, causing erratic control pressure, foaming, loss of fluid from the vent tube and possible transmission malfunction and/or damage.

Low Fluid Level

A low fluid level could result in poor transmission engagement, slipping, malfunction and/or damage. This could also indicate a leak in one of the transmission seals or gaskets.

Diagnostic Strategy

Troubleshooting an electronically controlled automatic transmission is simplified by using the proven method of diagnosis. One of the most important things to remember is that there is a definite procedure to follow.

NOTE: Do not take any short cuts or assume that critical checks or adjustments have already been made.

To properly diagnose a concern, have the following publications available:

- Clutch and Band and/or Clutch Application Chart
- Code Definitions
- Pressure Locations and Specifications
- Solenoid Firing Order

Diagnostics

- Carry out on-board diagnostic procedures key on engine off (KOEO) and key on engine running (KOER).
- Record all diagnostic trouble codes (DTCs).
- Repair all non-transmission codes first.
- Repair all transmission codes second.
- Erase all continuous codes and attempt to repeat them.
- Repair all continuous codes.
- If only pass codes are obtained, further information and test drives are required.



Automatic Transmission Diagnostic Worksheet



Initial Diagnostic Information

Technicians Name _____ Shop Name _____

Vehicle Make and Model _____

Vehicle Year, Engine Size and Transmission Type _____

Customers Concern _____

What modifications, if any, are done to the vehicle? _____

On Board Diagnostic Codes _____

Transmission Fluid _____

Electrical concerns? (i.e Battery, extra cables for auxiliary components) _____

Battery Voltage _____

Engine Concerns _____

Unusual Vibrations/Noises/Concerns _____

Test Drive Diagnostics

Selector Position: P___ R___ N___ OD___ D___ 3___ 2___ 1___

(Depending on the vehicle the selector may be different)

What is the verified concern? _____

When did the problem occur? _____

What Gear does the concern happen? _____

The Vehicle was: Hot? Normal? Cold?

The Outside temp was? Hot? Normal? Cold?

Driving conditions:

Accelerating___ Decelerating___ Braking___ Engine RPM___ Coast___

Road Surface: Up Hill___ Down Hill___ Flat___ Rough___

Pressure Test: P___ R___ OD___ D___ 3___ 2___ 1___

Stall Test: R___ OD___ D___ 3___ 2___ 1___



Shop Diagnostics



Linkages/Cables_____ Exhaust System_____ Oil Leaks_____ Yoke_____

Cooler Lines_____ Mounts_____ Driveline_____ U-Joints_____

Carrier Bearing_____ Electrical Connections_____

Over all Vehicle Performance_____

Transmission Case_____ CV Boots_____

Results of the Diagnostic Routine

What did your tests results Indicate?_____

Dissassembly

What components were damaged in the Transmission?_____

Road Test After the Repair

Engagement Test_____ Driving/Operating System_____ Shift Feel_____

Speedometer_____ Cruise Control_____ Lock-Up_____

Kick Down_____ Manual Linkage_____ TR Sensor_____

Tail/Head Lights_____ Engine RPM_____ Mounts_____

U-Joints_____ Clean Vehicle_____ Floor Mats_____

Is the Vehicle ready for delivery? _____

Technicians Signature_____

Managers Signature_____

NOTES:_____



Technical Bulletin Listing 2008

December, 2008

Transmission	Bulletin #	# Pages	Subject
January			
5R55N/S/W	1149	1	Soft 1-2, 2-3 Shift, Possible Skipped Shift
Honda/Acura	1150	1	Filling and Checking the Oil Levels
All Transmission	1151	5	Band Adjustment Chart
4T80E	1152	1	Sprag and Roller Clutch
February			
AW55-50SN	1153	1	2-3 Flare or Bump
A750F	1154	3	Introduction/Fluid Fill Operation
722.9	1155	4	Introduction/Fluid Fill Operation
AODE/4R70W			
4R70/75E	1156	2	Connector View and Pin Identification
A4RA, B4RA, M4RA	1157	1	Feed Pipe Identification and Locations
March			
4R100, 4F50N, AX4N			
AX4S	1158	1	Code P1746
4F50N	1159	1	Internal Valve body Illustration
42LE / 42RLE	1160	2	Pressure Testing and Specification
AW55-50SN, AF33-5	1161	1	Connector View and Pin Identification
ALL Transmissions	1162	4	Shift and Engagement Definitions
AF33-5, AW55-50SN	1163	2	Pressure Tap Locations and Specifications
5R55W	1164	1	Oil Leak from the Front of the Transmission
April			
6R60	1165	1	Delayed Engagement, downshift Clunk
6R60	1166	1	Transmission will not Flush using a Flush Machine
TAAT	1167	1	Vehicle Identification Plate
6R60	1168	8	Valve body Small Parts Locations
01M	1169	1	Delayed Engagement into Drive when Cold
RE5R05A	1170	1	No Movement
ZF5HP19	1171	1	Neutrals in Reverse
May			
RE5R05A	1172	1	Installing the Low/Reverse Sealing Rings
096/01M	1173	1	3-4 Flare
450-43LE	1174	3	Code Retriviell and Clearing the Codes
A245E/A246E	1175	1	Harsh Shift and MIL "ON" Code P2716
A750	1176	1	Solenoid Identification
A650E	1177	1	Solenoid Identification

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June

RE5R05A	1178	1	Input Clutch Failure and/or No Fourth or Fifth Gear
ZF5HP24	1179	1	Erratic Shifts and Uncommanded Downshifts
45RFE	1180	1	Engine Stalls in Drive-#4 Checkball Missing
A340	1181	3	Valve Body Exploded View
4T75E	1182	1	Hesitation or Flat Spot Between 35-50 mph
RE5F22A	1183	1	Solenoid Identification
BW T-Case	1184	1	Erratic T-Case Operation, Erratic Codes

July

4L80E	1117A	1	Planetary Damage, Pump Interchange
AWF-21	1185	1	Harsh Shifts, Clunk, Delayed Shifts, Possible, Slip
4T65E, 4T40/45E	1186	1	TCC Applying on top of Second Gear and P0742
U140F	1187	1	Solenoid Identification and Locations
RE5R05A	1188	5	Computer Diagnostics and Adaptive Strategies

August

5 & 6 Speed Standard	1189	2	Transmission Removal
62TE, 42RLE, and			
Mercedes	1190	2	ATF Level Check
5L40/50E	1191	2	Operating Characteristics
5R55N/S/W	1192	2	Ratio errors after Overhaul
RE5R05A	1193	2	Band Adjustment
RE5R05A	1194	1	Air Testing the Transmission

September

4F50N	1195	2	Relief Valve and CheckBall ID and Location
4F50N	1196	2	Case Connector ID and Internal Wiring
42RLE, 41TE, 42RLE			
45RFE, 545RFE	1197	4	P1776 Low/Reverse Switch Valve
09G 6 Speed	1198	1	Neutrals into 4th
09G 6 Speed	1199	1	Sprag Rotation
AWF-21B	1200	4	Valve Body Exploded View
4F27E	1201	1	2-3 Flare and Neutrals in 4th
4R70/75E	1202	2	ISS and OSS interchange

October

AODE/4R70W/			
4R70/75E	1156A	1	Connector View and Pin Location
Honda 5 Speed	1203	1	Disassembly Procedures, Feed Tube Damage
4R70W	1204	2	Parts Interchangeability
RE4F04A, RE4F03B	1205	1	Harsh 1-2 Shift, DTC P0745
Honda 2 and 3 Shaft	1206	1	Transmission is Stuck in the Park Position
ZF5HP24	1207	1	Low or High Pressure
AF23/33-5, RE5F22A			
AW55-50SN	1208	1	Soft Shifts, Low Line Rise, No Line Rise
AXODE, AX4S			
AX4N, 4F50N	1209	1	Neutrals, Binds, Cycling Shifts
AF33-5,			
AW55-50/51SN	1210	1	No Reverse from the Park Position (After Repairs)

Technical Bulletin Listing 2008

November

A246	1211	2	Internal Wiring Harness Installation
RE5R05A	1212	1	Reverse Clutch Anti-Rattle Clip Installation
AX4S/AX4N	1213	2	Updated Components
4T65E	1214	2	Late "Diode" Type Mechanical Sprag
All Toyota	1215	1	Broken case, Transmission Failure
U250E	1216	1	Solenoid Identification and Locations
U250E	1217	1	Harsh 5-4 Downshifts

December

4F27E	1218	1	Service
4T40/45E	1219	1	Oil Leak from the Left Axle
6F50	1220	1	Harsh Engagements, No Upshift, Fifth Gear Only
F4A42	1221	1	Harsh of Flare 2-3 Shift
722.6	1222	4	2-3 Drag or No 2-3 Shift, Failsafe
AX4N	1223	1	Accumulator Identification
B7WA	1224	1	Code 743/P1753



Technical Bulletin # 1149

Transmission: 5R55N/S/W

Subject: Soft 1-2, 2-3 Shift, Possible Skipped Shift

Application: Ford, Mercury, Lincoln

Issue Date: January, 2008

5R55N/S/W

Soft 1-2, 2-3 Shift, Possible Skipped Shift

It is important to properly install the band anchor struts. The “Long Edge” faces the band. A soft 1-2 and 2-3 shifts as well as skipped shifts may be caused by incorrect installation of the OD band and Intermediate band struts.





Technical Bulletin # 1150

Transmission: *Honda/Acura*

Subject: *Filling and Checking the Oil Levels*

Application: *Honda/Acura*

Issue Date: *January, 2008*

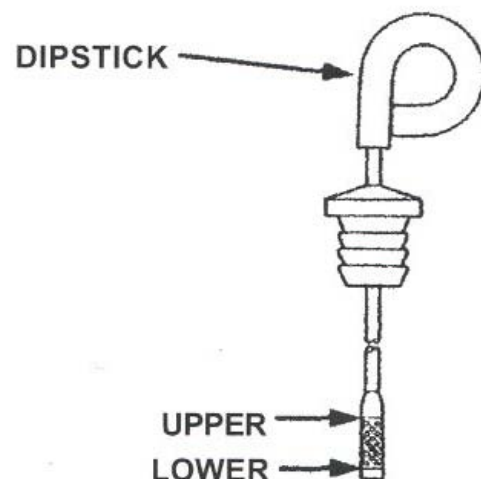
Honda/Acura

Filling and Checking the Oil Levels

Please use the following procedures to check the oil level on all front wheel drive Honda and Acura vehicles. DO NOT use these procedures on Isuzu built vehicles with rear wheel drive (4L30E).

Start engine and warm up to operation temperature. Turn off engine and wait 1-1 ½ minutes. Remove dipstick. Wipe oil off. Insert dipstick and pull out to read level at bottom of dipstick. Oil should read between marks or within range shown on dipstick.

Honda and Acura vehicles specified oil is ATF-ZI (part No. 08200-9001) for current and past vehicles including CVT.





Technical Bulletin # 1151

Transmission: *All*

Subject: *Band Adjustments*

Application: *Miscellaneous, All Makes*

Issue Date: *January, 2008*

Band Adjustment Chart

NOTE: On Transaxle models, the "Front Band" means the band closest to the torque converter. Rear band means the band furthest away from the torque converter. If there is only one band then it will be listed in it's appropriate location

Transmission	Front band	Rear band
CHRYSLER (Domestic)		
30RH & 32RH		
Cherokee & Wrangler ('94)	2 1/4 Turns	4 Turns
All Others	2 1/2 Turns	4 Turns
30TH & 31TH ('85-on)	2 1/2 Turns	3 1/2 Turns
36RH & 37RH	2 1/2 Turns	2 Turns
A404	3 Turns	Non Adjustable
A413 ('81)	2 Turns	3 1/2 Turns
A413 ('82-84)	2 3/4 Turns	3 1/2 Turns
A470 ('81)	2 Turns	3 1/2 Turns
A470 ('82-84)	2 3/4 Turns	3 1/2 Turns
A670	2 3/4 Turns	3 1/2 Turns
A500/40RH/42RH		
Dodge	2 1/2 Turns	4 Turns
Import		
3.0L4WD	1 7/8 Turns	6 Turns
All Others	2 7/8 Turns	6 Turns
Jeep	3 5/8 Turns	4 Turns
518/46RH/47RH	2 1/2 Turns	2 Turns
TF6		
6-Cylinder	2 Turns	Solid Band: 7 1/2 Turns
8-Cylinder	2 Turns	Wrap Band: 4 Turns
Colt 3 Turns	3 Turns	7 1/2 Turns
TF8	2 1/2 Turns	2 Turns
42RE		
1994-95	3 5/8 Turns	4 Turns
1996	2 7/8 Turns	2 Turns
1997	3 5/8 Turns	2 Turns
1998-99	3 5/8 Turns	4 Turns
2000-04	3 Turns	4 Turns

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Transmission	Front band	Rear band
44RE		
1996	2 7/8 Turns	2 Turns
1997	2 1/4 Turns	4 Turns
1998	2 1/2 Turns	4 Turns
1999	2 1/4 Turns	4 Turns
2000-2001	2 7/8 Turns	4 Turns
46RE	2 7/8 Turns	2 Turns
47RE		
1996	2 7/8 Turns	2 Turns
1997-98	1 7/8 Turns	3 Turns
1999	1 7/8 Turns	2 Turns
2000-2003	1 7/8 Turns	3 Turns
48RE		
2003	1 3/4 Turns	3 Turns
2005-06		
V10	1 1/2 Turns	3 Turns
Diesel	1 3/4 Turns	3 Turns
FORD		
2-Speed	2 Turns	1/4" Servo Travel
4/5R55e		
95-98	2 Turns	2 1/2 Turns
99-up	2 Turns	2 Turns
5R55N & W	2 Turns	2 Turns
5R55S		
99-02	2 Turns	2 Turns
03-up	1 1/2 Turns	1 1/2 Turns
4FEAT	2 Turns	Not Used
4F20E	2 1/2 Turns	Not Used
A4LD	Overdrive & Intermediate	Selective Apply Pins
Coarse Thread	1 1/2 Turns	1/8-7/32" Travel
Fine Thread & Double Wrap	3 1/2 Turns	1/8-7/32" Travel
AOD/E/4R70W/4R75W	Non Adjustable	1/8-7/32" Travel
ATX, FLC	Select. Apply Pin 3/16-1/4"	Not Used
AX4N/AF50N	3/32-3/16" Servo Travel	Non Adjustable
AXOD/AXOD-E/AX4S	Select. Apply Pin 3/16-1/4"	3/16-1/4" Travel
C3	1 1/2 Turns	1/8-7/32" Travel
C4 & C5	Course Thread 1 1/2 Turns	2 Turns
C4 & C5	Fine Thread 3 1/2 Turns	2 Turns
C6	1 1/2 Turns	Not Used
CD4E	3/32-3/16" Servo Travel	Not Used
E4OD/4R100	Non Adjustable	Not Used

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Transmission	Front band	Rear band
F3A		
Carb.	2 Turns	Not Used
Fuel Injected	3 Turns	Not Used
F4EAT	2 Turns	Not Used
PCA (Lincoln)	3 Turns	1 1/2 Turns
SM/MED/Large Cruiso's/FMX	1/4" Servo Travel	1 1/2 Turns
GM/GEO		
Aluminum Powerglide	4 Turns	Not Used
Cast Iron Powerglide	W/Cushion Spring 4 Turns	1/4" Servo Travel
Cast Iron Powerglide	W/O Cushion Spring 3 Turns	1/4" Servo Travel
Dual Range Hydramatic	* 1/3 Turn from Tight	* 1/3 Turn From Tight
Dyna Flow	6 Turns	6 Turns
KF100/KF400	2 Turns	Not Used
JF403-E	2 1/2 Turns	Not Used
MX17 (Sprint)	1.5-3.0mm (.060-.118")	Not Used
ROTO 5	Not Used	2 Turns
ST-300	3 Turns	Not Used
Tempest torque	4 Turns	Not Used
THM 125, 3T40	1/16-1/8" Pin Travel	Not Used
THM 180	Not Used	5 Turns
THM 200	1/16-1/8" Pin Travel	Not Used
THM 200-R4	1/16-1/8" Pin Travel	Not Used
THM 250	Tighten 30 in Lbs/3 Turns	Not Used
THM 325	Selective Pin; 1/8-1/4"	Not Used
THM 325-4L	Selective Pin; 1/8-1/4"	Not Used
THM 400/425/3L80	Non Adjustable	Selective 1/8-1/4" Travel
THM 440-T4/4T60	Selective; 1/8-1/4"	Selective Pin 1/8-1/4" Travel
THM 4L30E	Not Used	5 Turns
THM 4L80E	Non Adjustable	Not Adjustable
THM 4T60E/4T65E	Non Adjustable	Not Used
THM 4T80E	Non Adjustable	Not Used
THM 700-R4/4L60/4L60E/4L65E	Selective ; 1/16-1/8"	Not Used
BORG WARNER		
T-35	1/4" Servo Travel	3/4 Turns
T-37 (Saab)	1/4" Servo Travel	3/4 Turns
T65 & T66	3/4 Turns	3/4 Turns
With Cast Iron Case	1/4" Servo Travel	1 1/2 Turns
3-Band 150, 200, 250	See Mercedes Section	
JATCO		
3N71B	2 Turns	Not Used
4N71B	Int. & OD 2 Turns	Not Used
F3A	2 Turns	Not Used
F4A-EL	2 Turns	Not Used
G4A-EL/G4A-HL	2 Turns	Not Used
JF506E	2 1/2 Turns	Not Used

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Transmission	Front band	Rear band
JR403e	2 1/2 Turns	Not Used
KF100	2 Turns	Not Used
N4A-EL/N4A-HL	Int. 2 1/2 Turns/OD 2 Turns	Not Used
RE4F02A/V	5 1/2 Turns	Not Used
RE4F04A/V	2 1/2 Turns	Not Used
RE4R01A/RE4R03A	2 1/2 Turns	Not Used
RL3F01A	2 1/2 Turns	Not Used
RL4F02A	5 1/2 Turns	Not Used
RL4F03A/V	2 1/2 Turns	Not Used
RL4R01A	2 1/2 Turns	Not Used
RN3F01A	2 1/2 Turns	Not Used
R4A-EL	2 1/2 Turns	Not Used
MITSUBISHI/CHRYSLER		
HYUNDAI/KIA		
F5A Series	5 1/2-5 3/4 Turn	Not Used
KM170	3 1/2 Turns	Not Used
KM171/F3A-21	Non Adjustable	Not Used
KM172/F3A-22	Non Adjustable	Not Used
KM175/F4A-22	2 1/2 Turns	Not Used
KM176/F4A-21	2 1/2 Turns	Not Used
KM177/F4A-23	2 1/2 Turns	Not Used
F4A-33	2 1/2 Turns	Not Used
W4A-32/33	2 1/2 Turns	Not Used
SUBARU		
4AT	3 Turns	Not Used
M41/M41A (3-Speed)	2 Turns	Not Used
SUZUKI		
MX17	.060-.118" 1.5-3.0mm Travel	Not Used
TOYOTA (inc. AW Jeep, Volvo, etc.)		
2 Speed With Pan	3 1/2 Turns	Not Used
2 Speed Without Pan	3 Turns	4 3/4 Turns
A-30	1/8" Servo Travel	1 Turn
A-130, A-131L & A-132L	1/16-1/8" Travel Select Pin	Not Used
A-140, A-140E & A-140L	1/16-1/8" Travel Select Pin	Not Used
A-240E, H & L Series	1/16-1/8" Travel Select Pin	Not Used
A-340, A-340E, A340F		
A-340H, A-341E & AW4		
AW50-40LE & 50-42LE	Need	Not Used
AW5/50-55SN/AF23/33-5	.227-.266 (5.76-6.76mm)	Not Used
LEXUS	3/32-1/8" Travel Select Pin	Not Used
TOYOTA	1/16-1/8" Travel Select Pin	Not Used
VOLKSWAGEN		
Type 003	3 1/4-3 1/2 Turns	1 3/4 -2 Turns
Type 010	2 1/2 Turns	Not Used

Technical Bulletin # 1151

Transmission	Front Band	Center Band	Rear Band
MERCEDES-BENZ			
Borg Warner 150	4 Turns	4 Turns	4 Turns
Daimler Benz (DB) 722.0 / 722.1 / 722.2 Clearance (4 Bolt Pan)	1 3/4 Turns	.118" (3.0mm) Clearance	.118" (3.0mm)
722.003 (4 Bolt Pan) Clearance	6 Turns	.118" (3.0mm) Clearance	.236" (6.0mm)
722.3 / 722.4 / 722.5 (6 Bolt Pan)	.078" (2.0mm)	Not Used	.216" (5.5mm)
For all cars except... 300 SEL/8 6.3 and the 600	Install 9mm (.354") checking gauge between revering operating arm and servo piston pin. Tighten to 48" pounds. Tighten lock nut and remove gauge. check the servo position in servo cylinder by measuring through the pressure checking opening. The distance measured from the cover to the piston should be 23mm (.905) to 24 mm (.945). Selective apply pins are used		
For 300 SEL/8 6.3 and 600 cars with K4B050 Transmission	Same as Above	Same as Above	Same as Above Except the clearance is 28 mm (1.102")

*Loosen the band adjustment bolt all the way. Start the engine. Shift the manual control lever into the Low position. Tighten the band adjustment bolt until it stops. Turn the ignition key to the off position, with the transmission still in the Low position (the band adjustment will loosen with the engine off). Count the number or turns it takes to re-tighten the adjustment bolt and back it off 1/3 of that number.



Technical Bulletin # 1152

Transmission: 4T80E

Subject: Sprag and Roller Clutch Rotations

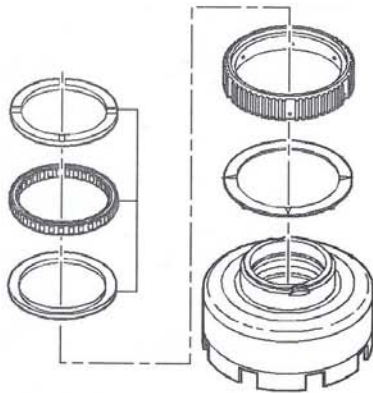
Application: GM,

Issue Date: January, 2008

4T80E

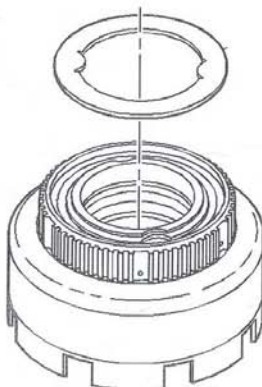
Sprag and Roller Clutch Rotations

Second Sprag Rotation

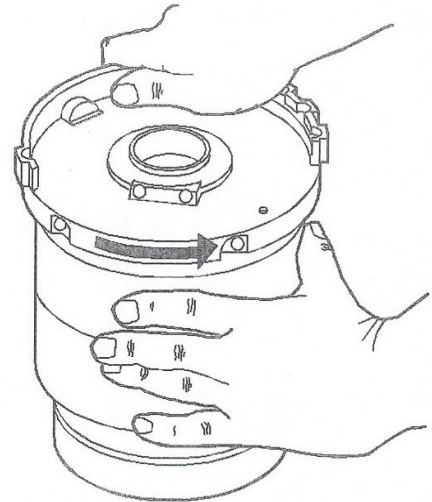


Second Sprag Rotation:

Verify the second sprag freewheels in the clockwise direction. Shown on the illustration on the left.

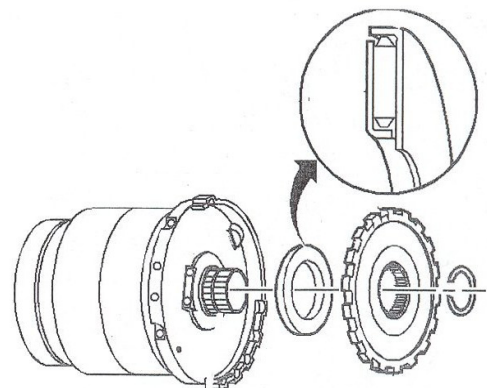
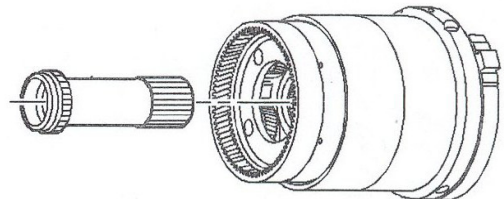


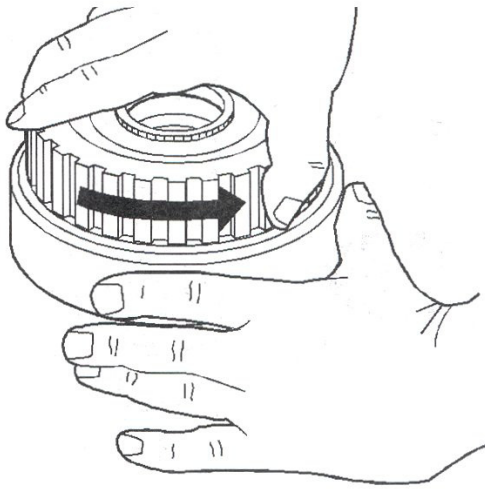
Low Roller Clutch



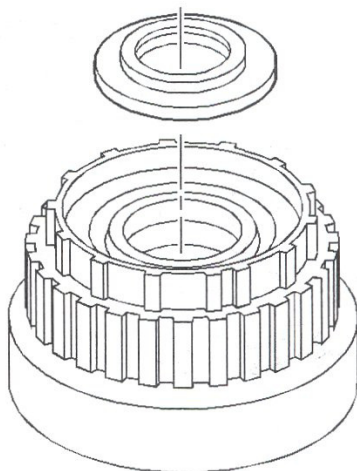
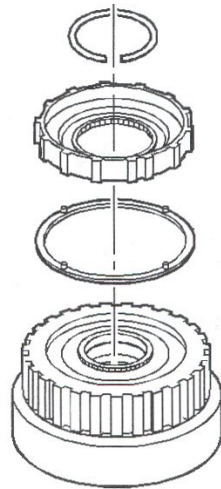
Low Roller Clutch:

To check the proper clutch rotation, the clutch should free-wheel in the counter clockwise direction, as shown on the illustration on the right.



**Forward Sprag:**

To check the proper clutch rotation, the clutch should freewheel in the counter clockwise direction, as shown on the illustration on the left.





Technical Bulletin Listing 2008

February, 2008

Transmission	Bulletin #	# Pages	Subject
January			
5R55N/S/W	1149	1	Soft 1-2, 2-3 Shift, Possible Skipped Shift
Honda/Acura	1150	1	Filling and Checking the Oil Levels
All Transmission	1151	5	Band Adjustment Chart
4T80E	1152	1	Sprag and Roller Clutch
February			
AW55-50SN	1153	1	2-3 Flare or Bump
A750F	1154	3	Introduction/Fluid Fill Operation
722.9	1155	4	Introduction/Fluid Fill Operation
AODE/4R70W			
4R70/75E	1156	2	Connector View and Pin Identification
A4RA, B4RA, M4RA	1157	1	Feed Pipe Identification and Locations



Technical Bulletin # 1153

Transmission: AW55-50SN (AF33-5)

Subject: 2-3 Flare or Bump

Application: Volvo C70, S/V40, S/V60, S/V70, S/V80

Issue Date: February, 2008

AW55-50SN (AF33-5)

2-3 Flare or Bump

Some Volvo models with the 5-speed AW55-50SN (AF33-5) transmission may have a bump or flare on the 2-3 shift. Some owners may also complain about a harsh 4-3 downshift. This can be caused by a broken washer on the B4 band servo cover. See Fig 1. A new cover assembly (30651771) is available to correct this concern.

Use care when removing and installing the band cover. See Fig. 3. Pry the cover inward. Clean the area around the snap ring and spray penetrating oil to help free parts. See Fig. 3. Remove the snap ring, servo cover and servo. See Fig. 4.

Install the new band servo cover. No relearn or re-flash is required for this repair. Test drive and make sure no other concerns are noted.

Fig. 1 Broken Washer in B4 Band Servo Cover

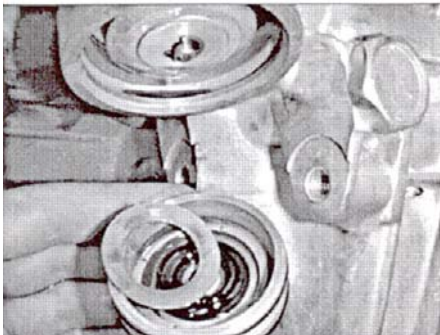


Fig. 2 New Band Cover with Washer Assembly



Fig. 3 Clean area around Servo Cover and Snap Ring

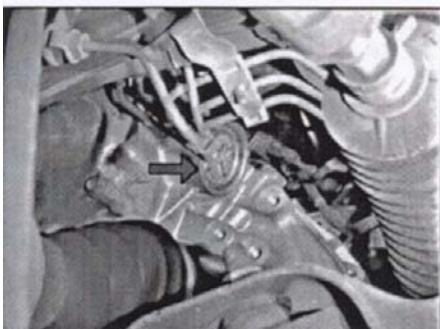
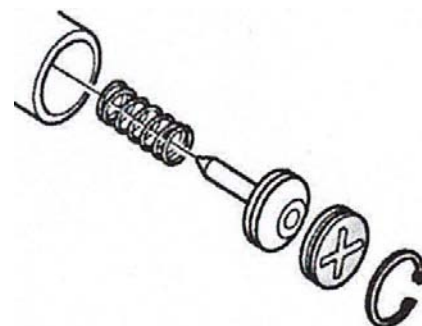


Fig. 4 View of B4 Servo Assembly





Technical Bulletin # 1154

Transmission: A750F

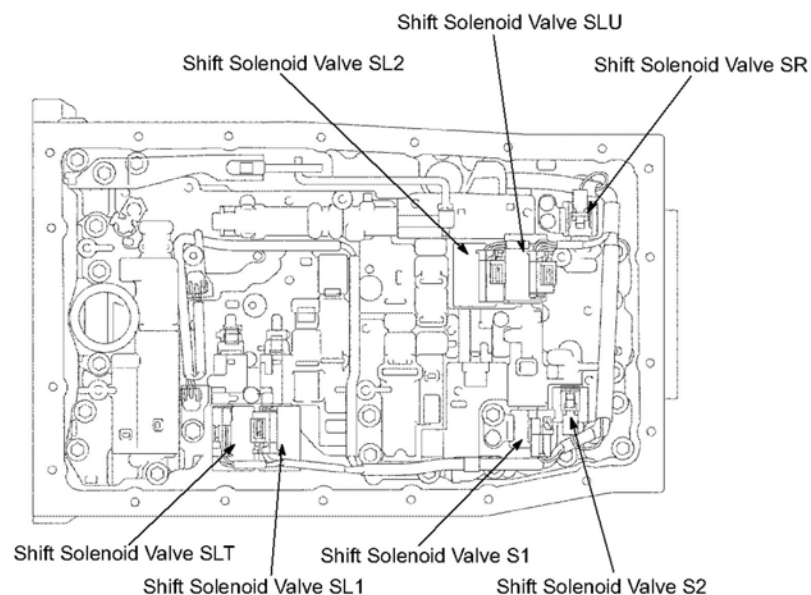
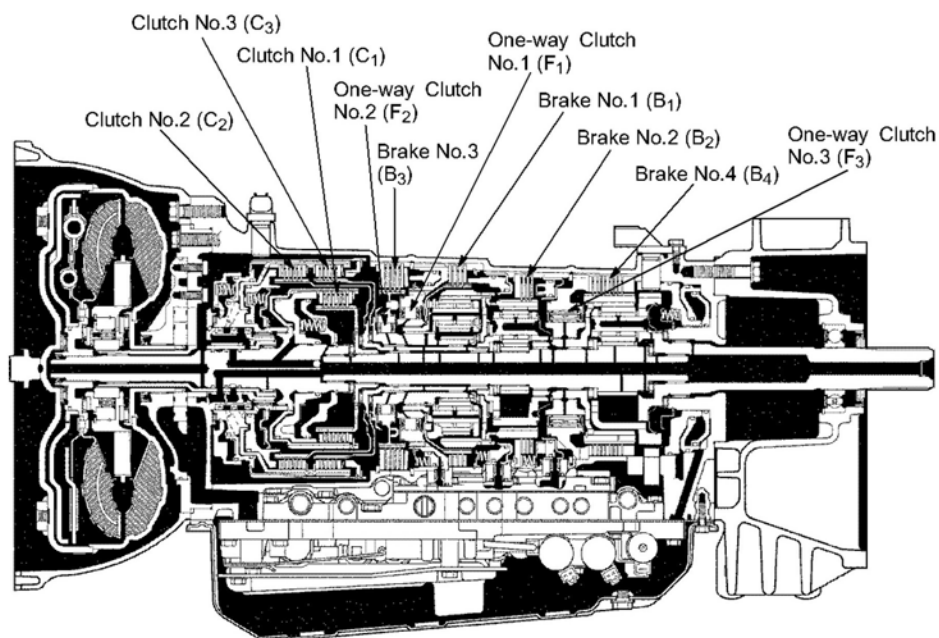
Subject: Introduction

Application: Toyota

Issue Date: February, 2008

A750F

Introduction



Technical Bulletin # 1154

Shift Lever Position	Gear Position	S1	S2	SR	SL1	SL2	SLU	C ₁	C ₂	C ₃	B ₁	B ₂	B ₃	B ₄	F ₁	F ₂	F ₃
P	Park	○	x	x	x	○	x	x	x	x	x	x	x	x	x	x	x
R	Reverse	○	x	x	x	○	x	x	x	○	○	x	x	○	○	x	x
N	Neutral	○	x	x	x	○	x	x	x	x	x	x	x	x	x	x	x
D	1st	○	x	x	x	○	x	○	x	x	x	x	x	x	x	x	○
	2nd	○	○	x	x	○	x	○	x	x	x	x	○	x	○	○	x
	3rd	x	○	x	x	○	x	○	x	○	x	x	○	x	○	x	x
	4th	x	x	x	x	○	○	○	○	○	x	x	○	x	x	x	x
	5th	x	x	○	○	x	○	x	○	○	○	x	○	x	x	x	x
4	1st	○	x	x	x	○	x	○	x	x	x	x	x	x	x	x	○
	2nd	○	○	x	x	○	x	○	x	x	x	x	○	x	○	○	x
	3rd	x	○	x	x	○	x	○	x	○	x	x	○	x	○	x	x
	4th	x	x	x	x	○	○	○	○	○	x	x	○	x	x	x	x
3	1st	○	x	x	x	○	x	○	x	x	x	x	x	x	x	x	○
	2nd	○	○	x	x	○	x	○	x	x	x	x	○	x	○	○	x
	3rd	x	○	x	x	x	x	○	x	○	○	x	○	x	○	x	x
2	1st	○	x	x	x	○	x	○	x	x	x	x	x	x	x	x	○
	2nd	○	○	○	x	x	x	○	x	x	x	○	○	x	○	○	x
L	1st	○	x	x	x	x	x	○	x	x	x	x	x	○	x	x	○

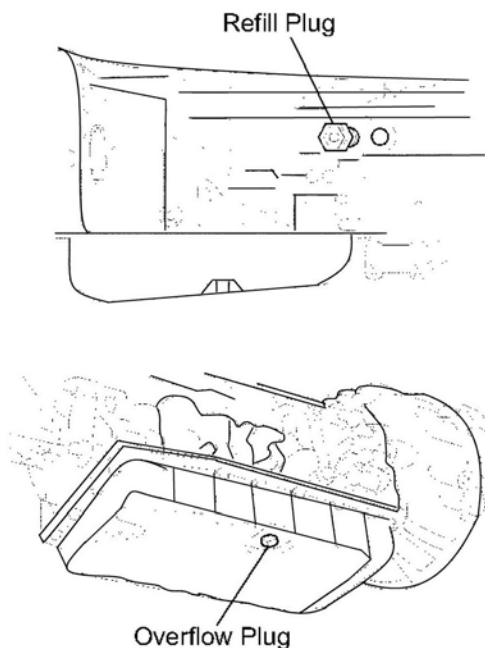
○ : Operating

F1, F2, F3 : Operate only when driving

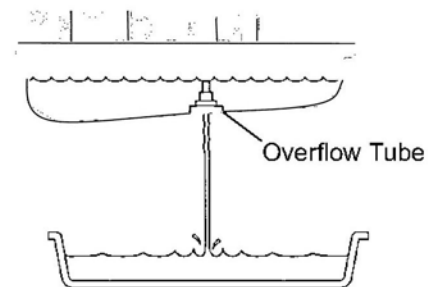
Fluid Fill Operation

Before filling the transmission, this unit requires Toyota Genuine ATF WS. It is necessary to refill the transmission with the correct amount of fluid. The vehicle must remain level during this operation. On vehicles with active suspension, turn the suspension control switch to the OFF position BEFORE to vehicle is raised off the ground.

Remove the refill plug and overflow plug.



Fill the transmission through the refill hole until fluid starts to trickle out of the overflow plug.
Reinstall the overflow plug.



Fluid Fill Operation (continued)

Fill the transmission with the correct amount of fluid. (Refer to the table below)

Repair	Fill Amount
Transmission pan and drain plug removal	1.3 liters (1.37 US qts, 1.14 Imp. qts)
Transmission valve body removal	3.9 liters (4.12 US qts, 3.43 Imp. qts)
Torque converter removal	5.3 liters (5.60 US qts, 4.66 Imp. qts)
Entire transmission assembly	5.3 liters (5.60 US qts, 4.66 Imp. qts)



Technical Bulletin # 1155

Transmission: 722.9

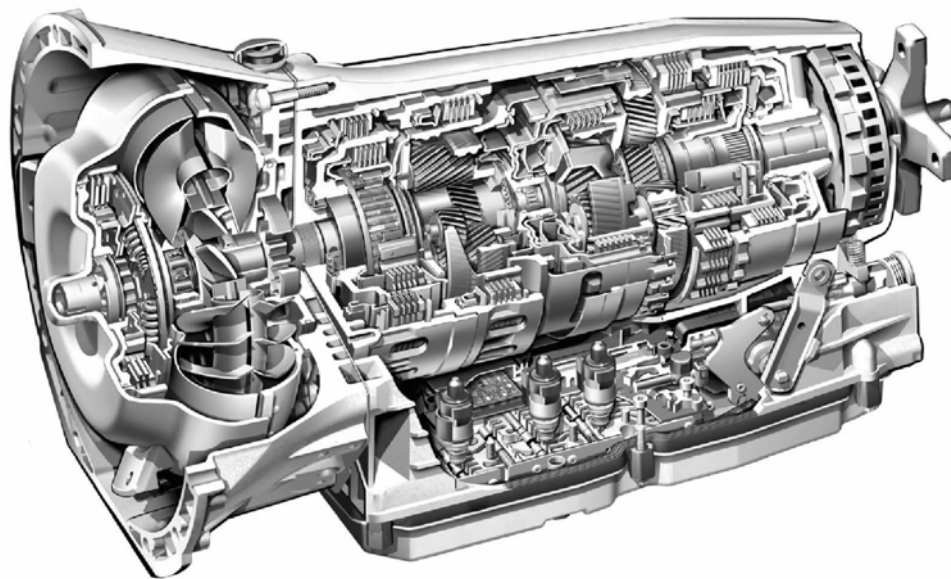
Subject: *Introduction*

Application: *Mercedes*

Issue Date: *February, 2008*

722.9

Introduction



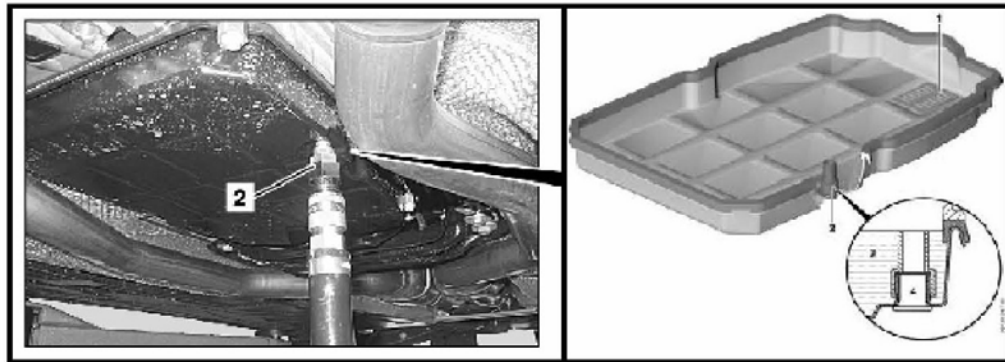
Transmission Fluid

- Requires a newly developed transmission fluid (ATF 3353) with the following properties:
 - Higher friction consistency
 - Higher thermal stability
 - Improved temperature behavior
- Oil suppliers are Shell & Fuchs Europe
- Only use this approved fluid:
 - Currently a 1 liter bottle is available
(MB part number A001 989 45 03 10)
- No scheduled maintenance
- Can also be used in 722.3 / .4 / .5 / .6

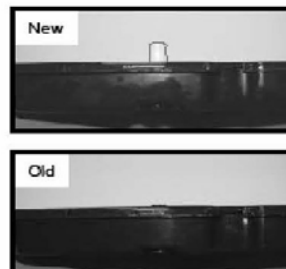
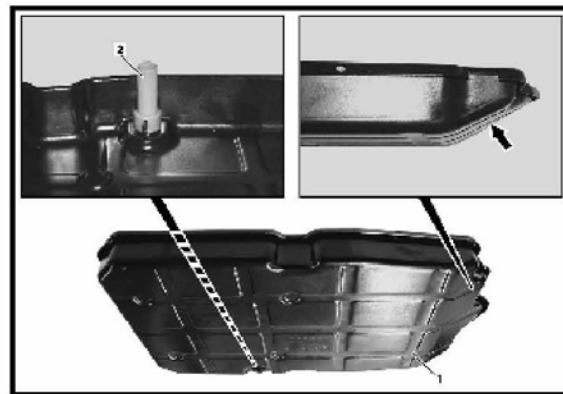


Transmission Fluid Level

- No dipstick or dipstick tube
- Fluid level checked using overflow method
- Oil pan has overflow pipe clipped onto pan, above drain plug
- Fluid level must be checked at specified transmission fluid temperature
- Special filling station used to add fluid through drain plug



- Oil pan has been optimized and can be identified by its part number (220 270 09 12) and design
- Overflow pipe length was increased and can be identified by its white color
- Pan design and overflow pipe change has resulted in an increase of fluid quantity by 0.2 liter
- If oil pan is removed during repairs, ensure new optimized pan is installed (Refer to DTB P-B-27.00/39)



Changes compared to old pan.

Pan depth: +3mm
Overflow pipe: +13.5mm

Shift Application Chart

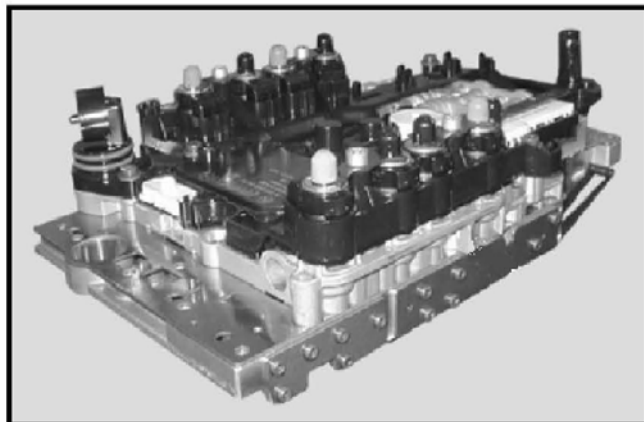
Gear	Gear ratio W/A 700	B1	B2	B3	BR	K1	K2	K3
1	4.377		●	●				●
2	2.859	●	●					●
3	1.921		●			●		●
4	1.358		●			●	●	
5	1.000					●	●	●
6	0.820	●					●	●
7	0.728			●			●	●
N (1)				●				●
R (1)	-3.416			●	●			●
R (2)	-2.251	●			●			●

(1) = S mode (2) = C mode

- 2 shift members are already applied when transmission is in 'N', only one shift member needs to be applied when a drive gear is selected.
- A gear change is performed by applying a shift member while disengaging another shift member.

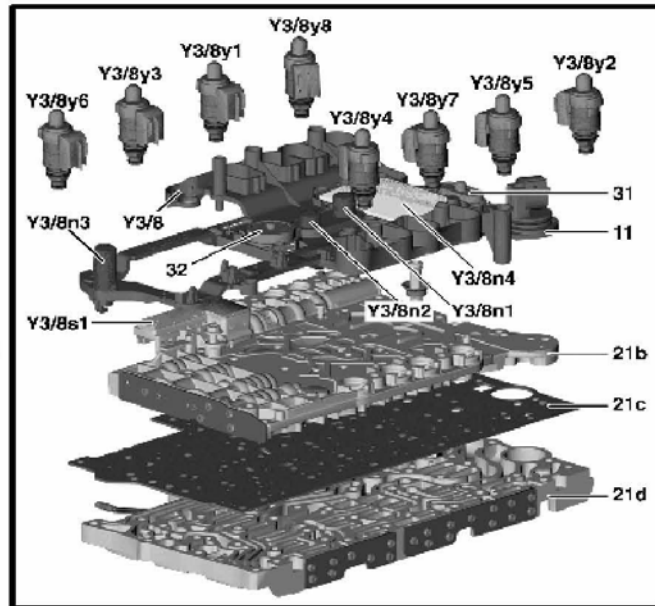
Electrohydraulic Control Module

- Basic principle of controlling hydraulics with electronics, as 722.6
- Transmission control module will adapt shift for optimal quality
- Valve body contains traditional valves, restrictors, selector valve, etc ...
- Mounted onto valve body are electrical components that control, monitor and enable the gear shifts
- Assembly comes as one unit
- **Do not** remove or replace any components of this assembly – only replace as a complete unit



Electrohydraulic Control Module

- 11 Plug connection
- 21b Valve body upper
- 21c Intermediate panel
- 21d Valve body lower / Shift housing
- 31 Oil control float 1
- 32 Oil control float 2
- Y3/8 Electric control module
- Y3/8n1 Turbine rpm sensor
- Y3/8n2 Internal rpm sensor
- Y3/8n3 Output rpm sensor
- Y3/8n4 Transmission control module
- Y3/8s1 Selection range sensor
- Y3/8y1 Working pressure control solenoid valve
- Y3/8y2 K1 clutch control solenoid valve
- Y3/8y3 K2 clutch control solenoid valve
- Y3/8y4 K3 clutch control solenoid valve
- Y3/8y5 B1 brake control solenoid valve
- Y3/8y6 B2 brake control solenoid valve
- Y3/8y7 B3 brake control solenoid valve
- Y3/8y8 Torque converter lockup clutch control solenoid valve





Technical Bulletin # 1156

Transmission: AODE/4R70W/4R70/75E

Subject: Case Connector Pin ID

Application: Ford

Issue Date: February, 2008

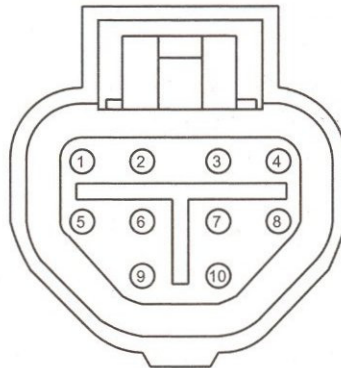
AODE/4R70W/4R70/75E

Connector View and Pin Locations ID

The AODE/4R70W and 4R70/75E Transmission case connectors have gone through several changes over the past 14 years. Use the following illustrations to properly identify the pin locations and connector views during your diagnostics.

C168 (WH)

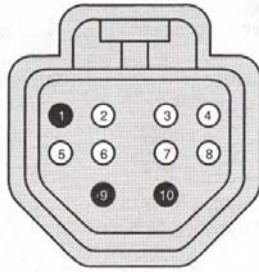
**2002-2007
4R70W/4R70/75E**



Pin	Circuit	Gauge	Circuit Function
1	1138 (VT-WH)	18	PCM power relay output
2	480 (VT-YE)	18	Torque converter clutch TCC solenoid
3	359 (GY-RD)	20	Signal return
4	-	-	Not Used
5	315 (VT-OG)	18	Shift solenoid B
6	237 (OG-YE)	18	Shift solenoid A
7	925 (WH-YE)	18	Electronic pressure control (EPC) solenoid
8	923 (OG-BK)	18	Transmission Fluid Temperature TFT sensor
9	-	-	Not Used
10	-	-	Not Used

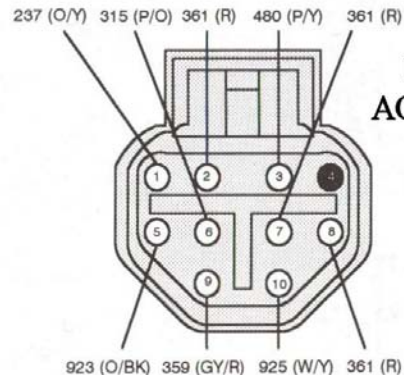
Technical Bulletin

1998-2001
4R70W



C183
4R70W TRANSMISSION

PIN	CIRCUIT	CIRCUIT FUNCTION
1	—	NOT USED
2	359 (GY/RD)	Signal Return
3	480 (VT/YE)	Torque Converter Clutch Solenoid
4	1138 (VT/WH)	Vehicle Power
5	923 (OG/BK)	Transmission Fluid Temperature (TFT)
6	925 (WH/YE)	Electronic Pressure Control Solenoid
7	237 (OG/YE)	Shift Solenoid A (SSA)
8	315 (VT/OG)	Shift Solenoid B (SSB)
9	—	NOT USED
10	—	NOT USED



1993-1997
AODE/4R70W

C183 (BLACK)
4R70W TRANSMISSION

PIN	CIRCUIT	CIRCUIT FUNCTION
1	237 (O/Y)	Shift solenoid #1
2	361 (R)	Vehicle Power
3	480 (P/Y)	Torque Converter Clutch Solenoid
4	—	NOT USED
5	923 (O/BK)	Transmission Fluid Temperature (TFT)
6	315 (P/O)	Shift Solenoid #2
7	361 (R)	Vehicle Power
8	361 (R)	Vehicle Power
9	359 (GY/R)	Signal Return
10	925 (W/Y)	Electronic Pressure Control Solenoid



Technical Bulletin # 1157

Transmission: A4RA, B4RA, M4RA

Subject: Feed Pipe ID and Location

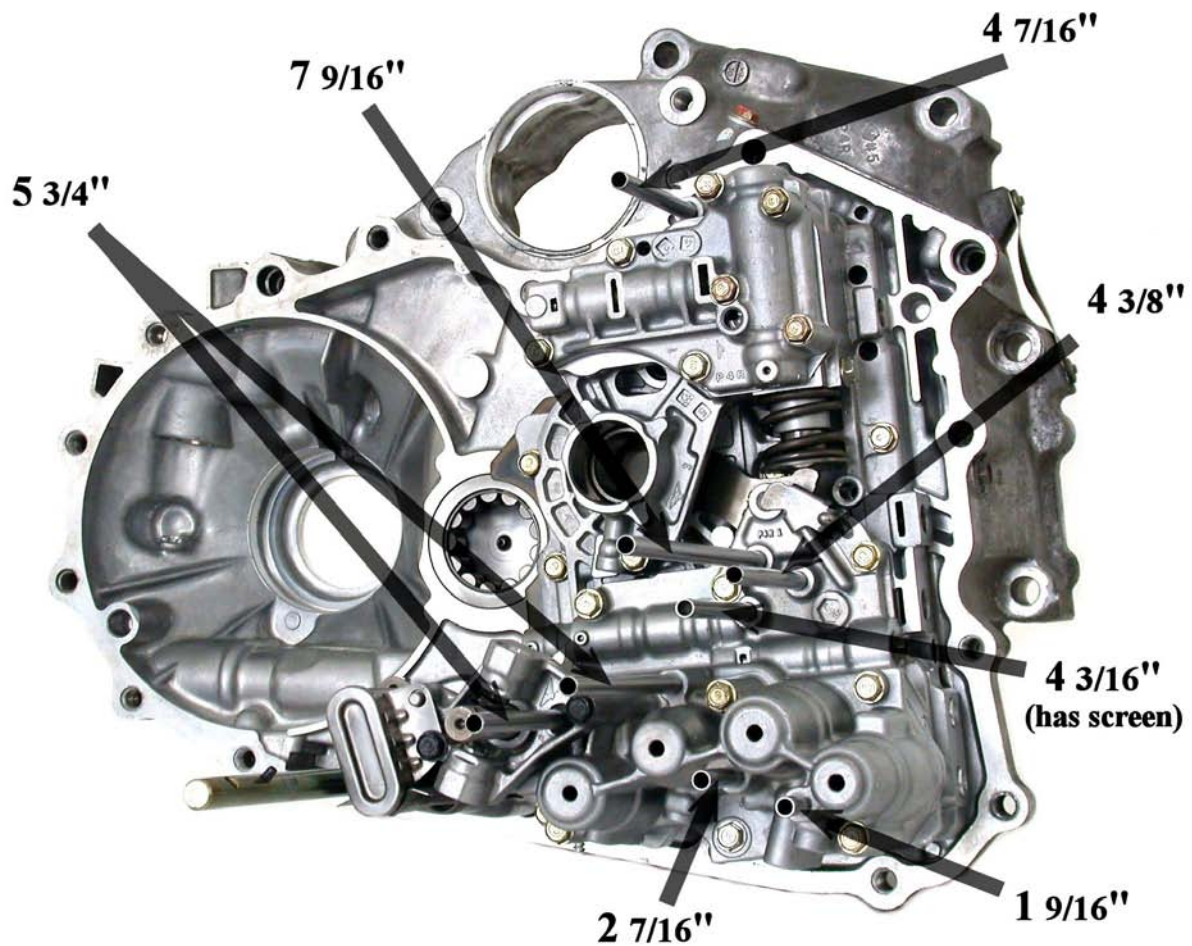
Application: 1996-2000 Honda Civic

Issue Date: February, 2008

A4RA, B4RA, M4RA

Feed Pipe ID and Location

1996-2000 Honda Civic feed pipe ID's and locations. Use the picture to identify feed pipes and their locations.





Technical Bulletin # 1159

Transmission: 4F50N

Subject: Internal Valve Body Illustration

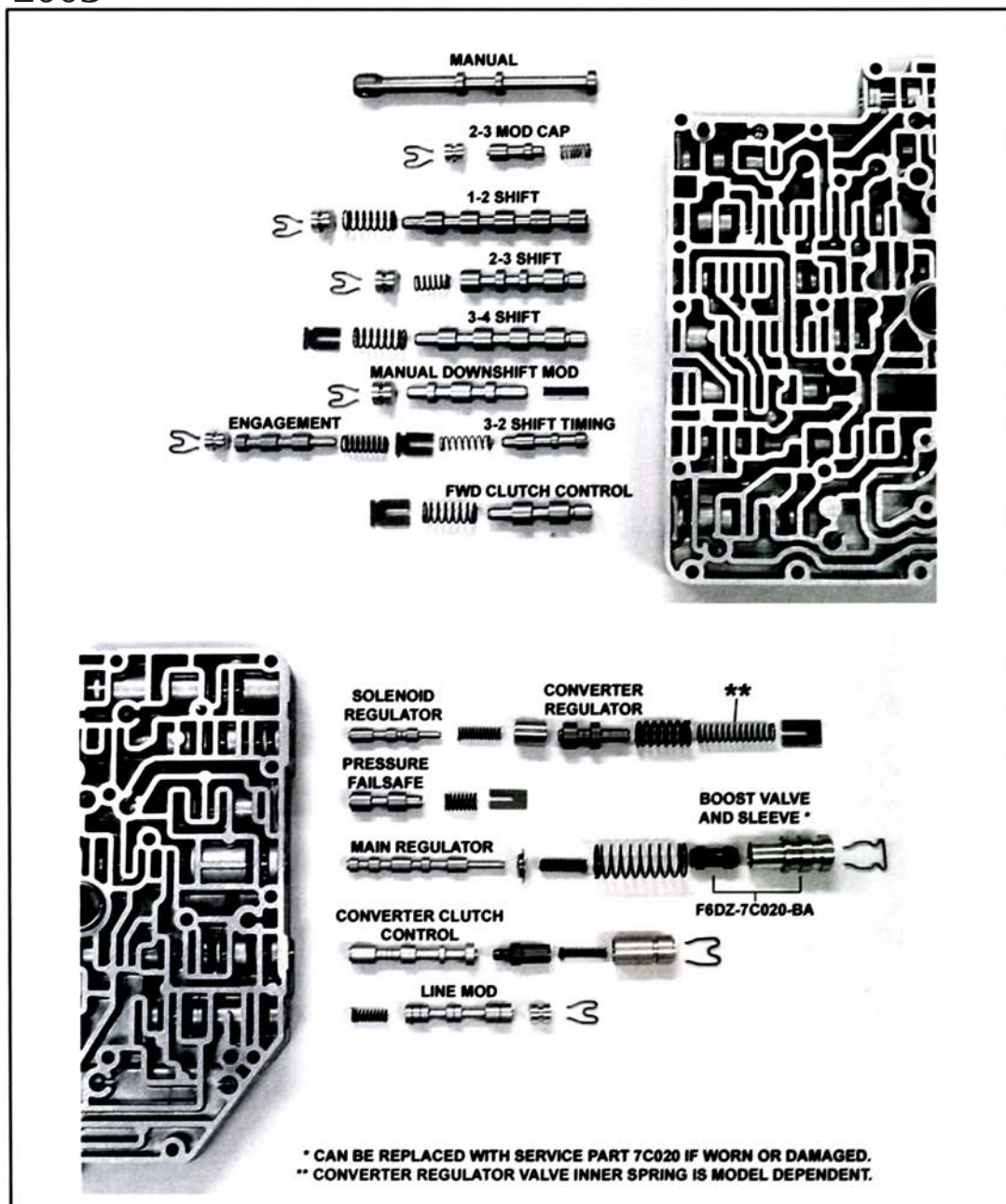
Application: Ford

Issue Date: March, 2008

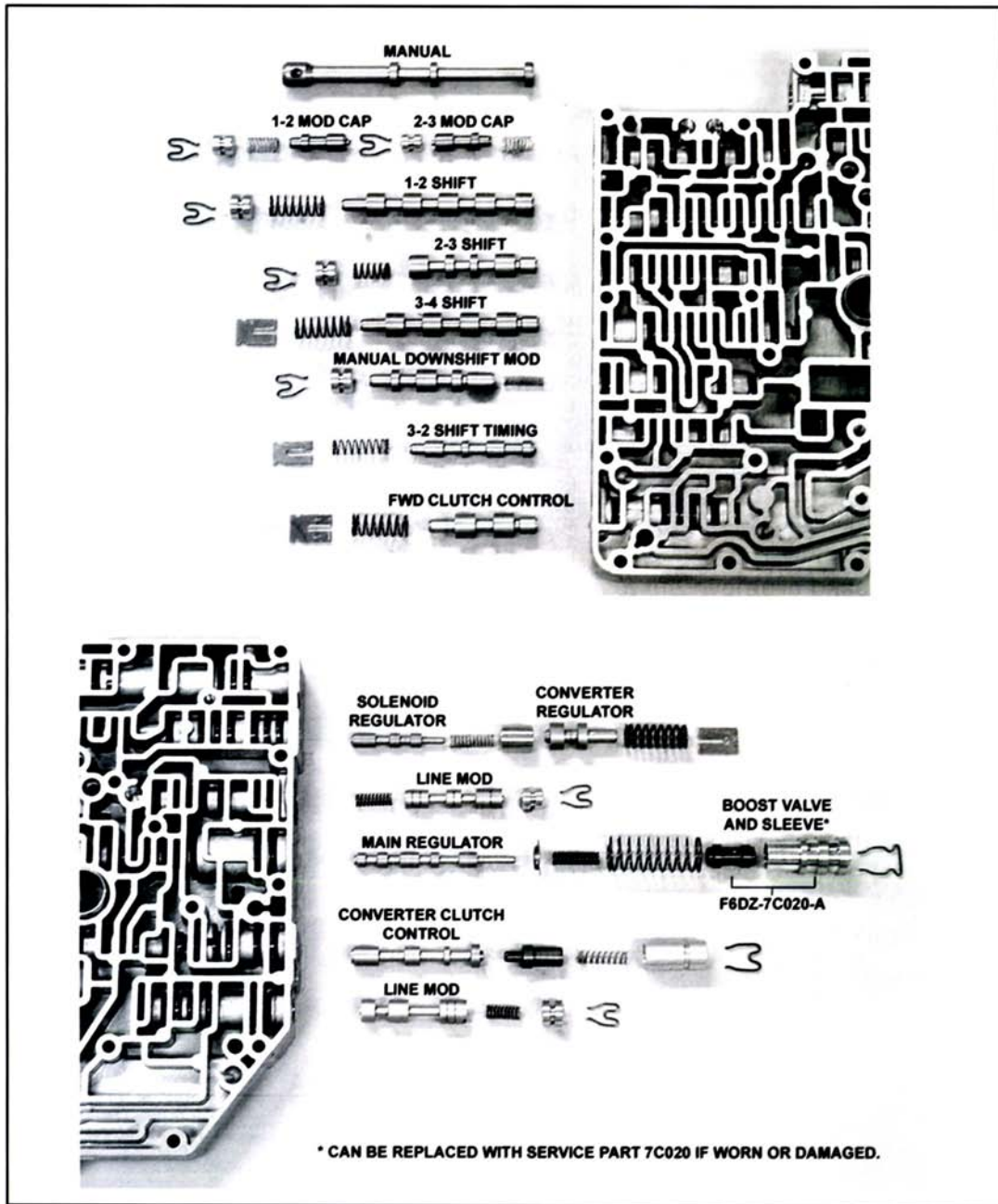
4F50N

Internal Valve Body Illustration

2000-2003



2004





Technical Bulletin # 1160

Transmission: 42LE/42RLE

Subject: *Pressure Testing and Specifications*

Application: *Chrysler*

Issue Date: *March, 2008*

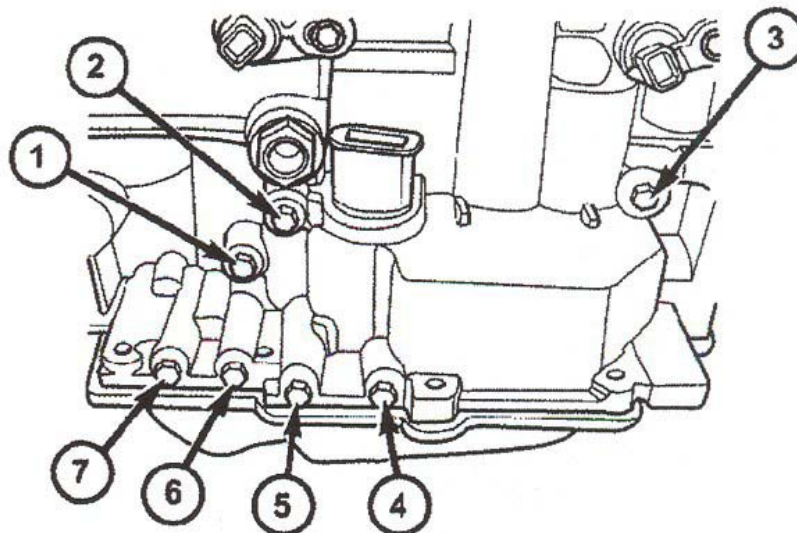
42LE/42RLE

Pressure Testing and Specifications

Before performing any pressure test make sure the TCM/PCM is clear of codes and the transmission fluid level is normal.

NOTE: ALL pressure tests are performed with the wheels off of the ground.

1 - TORQUE CONVERTER CLUTCH OFF
2 - REVERSE
3 - LOW/REVERSE
4 - 2/4
5 - UNDERDRIVE
6 - TORQUE CONVERTER CLUTCH ON
7 - OVERDRIVE



Technical Bulletin # 1160

All pressure tests are performed with the wheels off the ground, in a specific gear, and at a specific speed.

ALL PRESSURE SPECIFICATIONS ARE PSI (on hoist, with wheels free to turn)

Gear Selector Position	Actual Gear	PRESSURE TAPS						
		Underdrive Clutch	Overdrive Clutch	Reverse Clutch	Torque Converter Clutch Off	Torque Converter Clutch On	2/4 Clutch	Low/Reverse Clutch
PARK - 0 mph *	PARK	0-2	0-5	0-2	60-110	45-100	0-2	115-145
REVERSE - 0 mph *	REVERSE	0-2	0-7	165-235	50-100	35-85	0-2	165-235
NEUTRAL - 0 mph *	NEUTRAL	0-2	0-5	0-2	60-110	45-100	0-2	115-145
Low - 20 mph #	FIRST	110-145	0-5	0-2	60-110	45-100	0-2	115-145
Third - 30 mph #	SECOND	110-145	0-5	0-2	60-110	45-100	115-145	0-2
Third - 45 mph #	DIRECT	75-95	75-95	0-2	60-90	45-80	0-2	0-2
OD - 30 mph #	OVERDRIVE	0-2	75-95	0-2	60-90	45-80	75-95	0-2
OD - 50 mph #	OVERDRIVE WITH TCC	0-2	75-95	0-2	0-5	60-95	75-95	0-2
* Engine Speed at 1500 rpm								
# CAUTION: Both wheels must be turning at same speed.								



Technical Bulletin # 1161

Transmission: AW55-50 SN & AF33-5

Subject: Delayed Forward Engagement

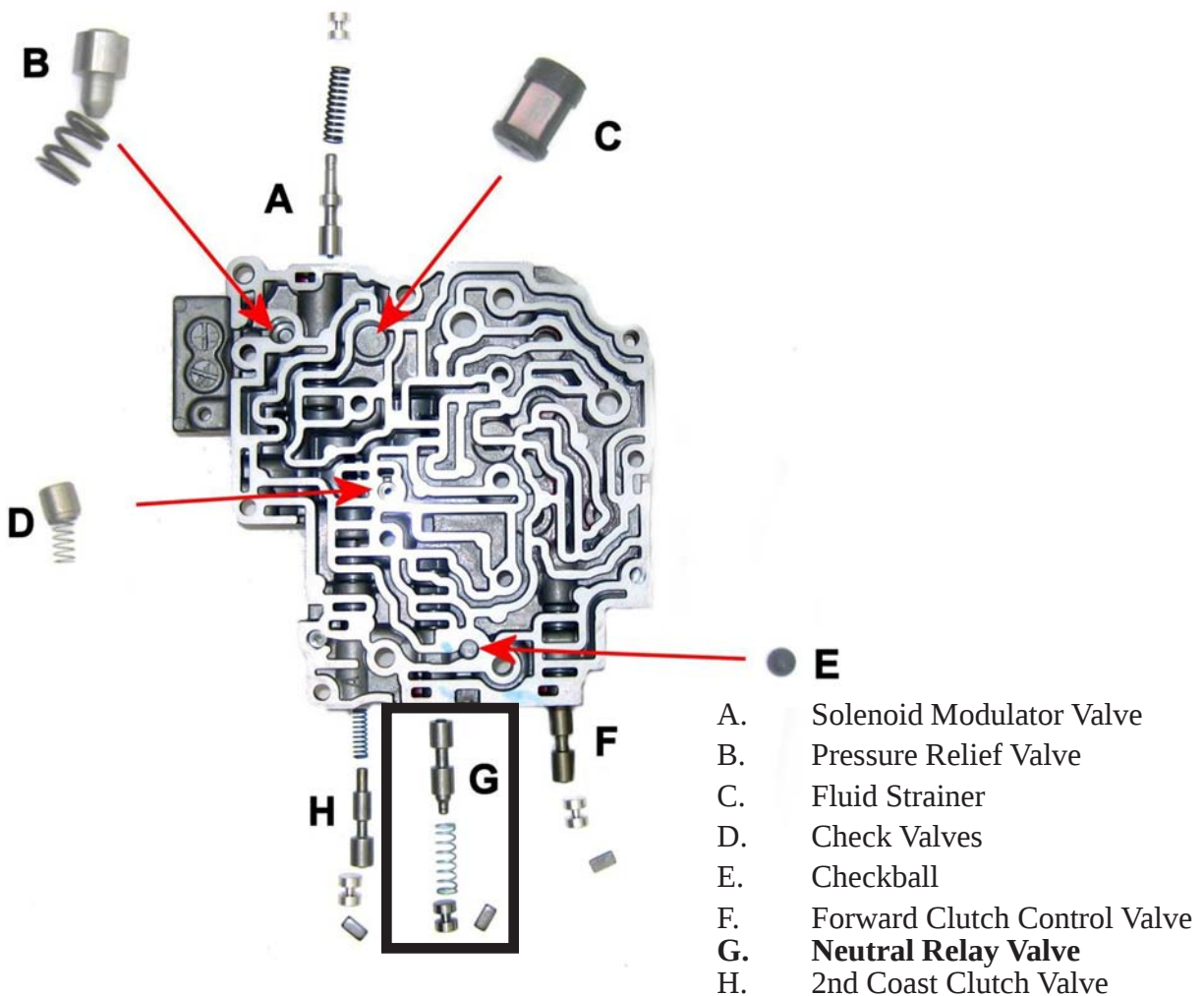
Application: 2000-UP Volvo 7 2002-06 Saturn Vue

Issue Date: March, 2008

AW55-50 SN & AF33-5

Delayed Forward Engagement

Some Saturn and Volvo models with the AW55-50 or AF23/33-5 transmission may have a delay when engaging forward. Make sure there are no internal problems and the computer has had the latest software update (if available). If no other problems are found, install a 50 % stronger spring in the Neutral Relay Valve. Use the exploded view of the valve body to identify the spring.





Transmission: *All Transmissions*

Subject: *Shift and Engagement Definitions*

Application: *All Makes and Models*

Issue Date: *April, 2008*

All Transmissions

Shift and Engagement Definitions

We've broken these definitions into two basic categories: Quality or Feel Issues, and Timing Issues. In every case, the term engagement will be used to describe the conditions when you first move the shift selector into gear. Shift will be used to describe going from one gear ratio to the next, such as during the 1–2 shift.

Quality or Feel Issues

Chatter/Shudder —

The transmission seems to engage and disengage rapidly, creating a vibration throughout the drive-line. This may occur during initial engagement, during one specific shift, on lockup, or in all ranges. It may also be temperature related. It's often difficult to tell the difference between a transmission chatter and an engine misfire, especially when it takes place on lockup. That's because the additional load placed on the engine during lockup can force a misfire.

Flare —

During a shift, the transmission seems to drop into neutral momentarily, allowing the engine to rev beyond its normal range. Then the transmission re-engages as the shift completes, going into the next gear range.

Harsh Engagement —

The transmission feels uncomfortably firm when first placed in gear; anything from a crisp “bump,” to a snap-your-neck-back, rattle-your-teeth “bang” into gear. May occur only in forward ranges, only reverse, or both.

Harsh Shifts —

The transmission feels uncomfortably firm during the shift from one range to the next. May occur during one specific shift, such as the 1–2 or 2–3, or all shifts.

Slide-Bump —

This is a soft, sloppy shift that finishes with a firm apply, or “bump.” It usually occurs when an accumulator bottoms out before the shift is complete, allowing the pressure to rise slowly, then suddenly jump to maximum, creating the bump.

Technical Bulletin # 1162

Quality or Feel Issues (continued)

Slips/Soft Engagement —

The transmission goes into gear so gently that you might never be sure it's fully engaged. May occur only in forward ranges, only reverse, or both

Slips/Soft Shift —

The transmission slides from one gear into the next, so gently that you might never be sure when the shift is complete. May occur during one specific shift or all shifts.

Timing Issues

Binds Up —

Two clutches apply at the same time, locking the geartrain from turning. While annoying when it occurs in 1st gear, it can be devastating when it occurs in a higher range, while the car is moving; the sudden locking of the geartrain can tear the transmission apart.

Delayed Engagement —

You start the engine, put the transmission selector into drive, and... nothing. At least, not right away. You wait one, two, maybe three or more seconds, and then finally the transmission engages. This is often caused by converter drainback; the fluid in the converter drains back into the transmission overnight. Then, when you first start the engine, it takes a few seconds for the converter to fill and allow the transmission to engage.

Early Shifts —

In this case, "early" means the transmission is shifting at a lower speed than acceptable, based on driving conditions. This may be for a single range, or for all gear ranges.

Erratic Shifts —

One time the transmission shifts normally; another time it misses 2nd gear. Or maybe it shifts from 2nd right to 4th. The important issue is that it's capable of shifting normally; it's just not doing it all the time. The difference is often due to load or temperature variations.

Hesitation —

You press down on the gas pedal to accelerate, and the car momentarily loses power. A second later, it picks back up again. While not normally transmission related, customers often bring cars in with a hesitation, assuming it's a trans problem (part of the "ever since you..." syndrome).

Hunting/Cycling —

The transmission shifts back and forth between two gear ranges for no apparent reason, without remaining either range. This condition is often confused with an engine surge or misfire, and it can be difficult to tell the difference without examining clutch apply pressures, to see if they're cycling too.

Improper Shift Sequence —

The transmission shifts gear ranges out of order; instead of 1-2-3-4, it may shift 1-3-2-4, 1-2-4-3, or even 1-4-3-2. This is often caused when shift solenoid wiring is crossed, or the solenoids themselves are switched in the valve body.

Timing Issues (continued)

Late Shifts —

In this case, “late” means the transmission is shifting at a higher speed than acceptable, based on driving conditions. This may be for a single range, or for all gear ranges.

Locks Up on Top of Shift —

The transmission shifts gears, and the converter clutch immediately locks up. This creates what may feel like a double shift. Because of the additional load on the engine, it may drag the engine down, causing a lag, hesitation or misfire.

Neutrals on Shift —

The transmission engages and the car pulls out normally. Then, when it reaches about 18 MPH, the transmission shifts... into neutral. Since it's now in neutral, there's a good chance it won't upshift any further. If you accelerate hard from a stop and then back off on the gas, the car may be moving fast enough for the transmission to skip the range that wasn't engaging, but not always.

No Downshift —

You start out fine; the transmission upshifts through the gears normally. But when you slow down or come to a stop, the transmission won't shift back into a lower gear range.

No Engagement —

You start the engine, put the transmission selector into drive, and... nothing. The transmission never goes into gear. This can occur in forward only, reverse only, or both. And in some cases, putting the transmission in 2nd or manual low will force the transmission to engage, because those ranges apply an additional clutch or band.

No Kickdown —

On a hard throttle, the transmission should shift down into a lower gear range, to provide faster acceleration. In this case, the engine accelerates normally when you step down on the gas, but the transmission won't downshift.

Skips a Gear —

The transmission engages normally, but somewhere between low gear and high range, it misses a range. It may shift 1-2-4-5, 1-3-4-5 or maybe it shifts 1-2-3-5. In each case, one of the normal ranges is missing.

Stalls the Engine —

You start the engine, put the transmission in gear. The transmission engages with a harsh “bang!” and the engine stalls. This is usually caused when the converter clutch applies while the car is stopped, locking the engine to the drive wheels, stalling the engine.

Won't Upshift —

The transmission engages normally, but won't shift into a higher range. In some cases it may shift manually; in other cases it may not.

Timing Issues (continued)

Wrong Gear Starts —

From a stop, the transmission starts in 2nd, 3rd or even 4th gear. This can be caused by the computer going into failsafe. It's further complicated because some transmissions start normally in 2nd gear under certain conditions



Technical Bulletin # 1163

Transmission: AF33-5 / AW55-50SN

Subject: *Pressure Tap Locations & Specifications*

Application: GM, Saturn

Issue Date: March, 2008

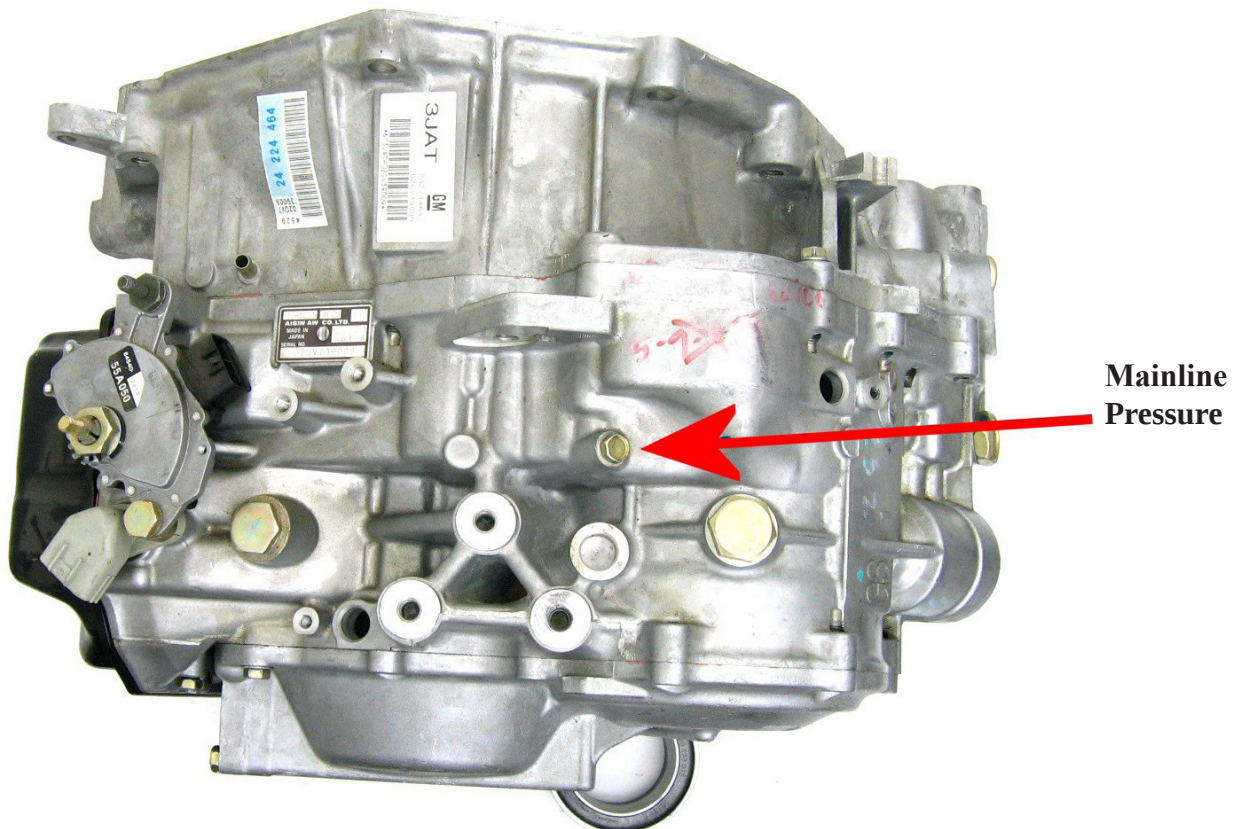
AF33-5 / AW55-50SN

Pressure Tap Locations and Specifications

Drive: 47-58 psi 185-208 psi

Reverse: 70-90 psi 245-290 psi

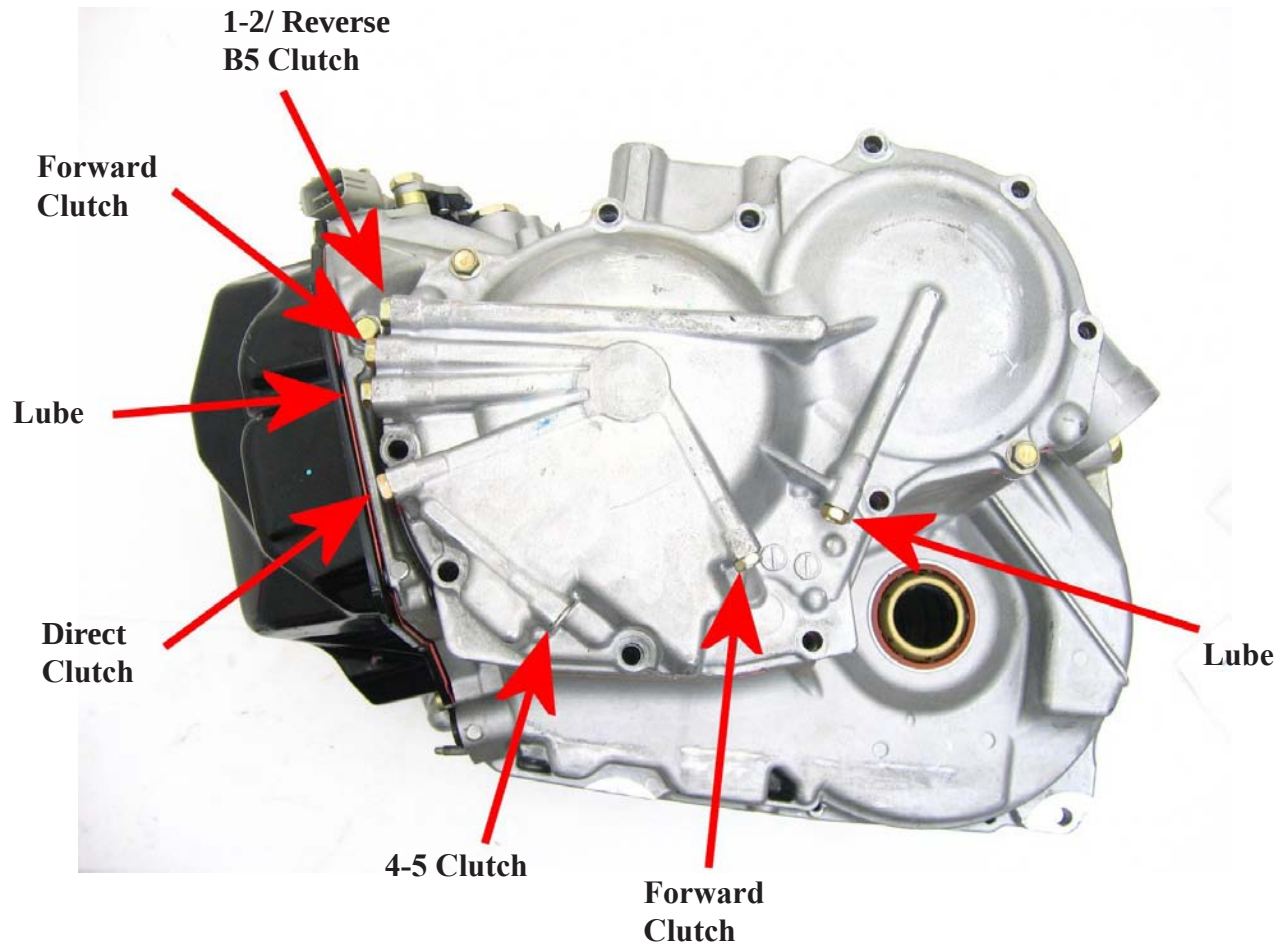
Specific clutch pressures will be with-in 5 psi of line pressure specifications.



Technical Bulletin # 1163

Drive: 47-58 psi 185-208 psi
Reverse: 70-90 psi 245-290 psi

Clutch pressures will be with-in 5 psi of line pressure specifications





Technical Bulletin # 1164

Transmission: 5R55W

Subject: *Front Seal Leak*

Application: *Ford, Mercury*

Issue Date: *March, 2008*

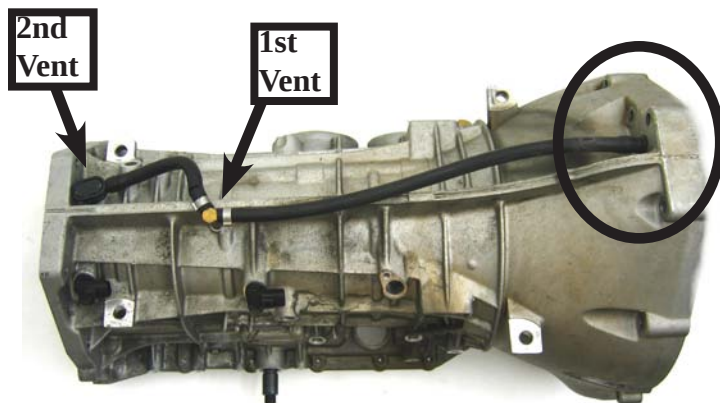
5R55W

Front Seal Leak

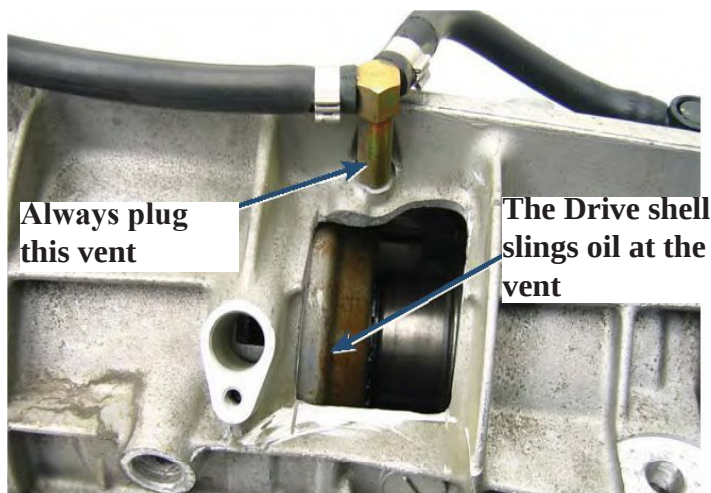
Early versions of the 5R55W had two transmission vents. The first vent is located about 5 inches forward of the second vent. The second vent is located on top of the case, just in front of the tail housing.

Why Ford put the second vent here is a mystery, because this placed it right above the drive shell which slings a lot of oil right at the vent. The top of the vent hose runs inside the top of the bellhousing. When the vent hose fills with oil, it appears as if the transmission has a front seal leak.

Since you really don't need two vents, simply use a cup plug or set screw to plug the front vent.



The top of the vent hose runs inside the top of the bellhousing. When the vent hose fills with oil, it appears as if the transmission has a front seal leak.





Technical Bulletin # 1165

Transmission: 6R60

Subject: *Delayed Engagement, Downshift Clunk*

Application: 2006-2008 Ford, Mercury

Issue Date: April, 2008

6R60

Delayed Engagement, Downshift Clunk, Hesitation at Tip-in

- Delayed engagement into drive from Park, Neutral, or Reverse
- Downshift “clunk” when coming to a stop
- Hesitation at tip-in when accelerating from a stop

These conditions may be the cause of the TCM. This concern can be addressed by reprogramming the TCM

If any one or more of these symptoms shows up at your shop, Ford has a PCM and TCM recalibration to address these complaints. The TCM can not independently be reprogrammed so the PCM must be cleared of any DTC's so that both the PCM and TCM can be programmed simultaneously.

The TCM Keep Alive Memory will be reset after re-flashing which can cause slight drivability complaints if a relearn procedure is not performed. Use the following instructions after flashing to relearn adaptive shift strategy.

1. Accelerate from a stop at light throttle. The 1-2, 2-3, and 3-4 shifts must happen at engine speeds between 1300-1800 RPM.
2. Accelerate gently to 50 MPH so the transmission shifts into sixth gear.
3. Lightly brake to a complete stop and hold the brake with the transmission in drive for 15 seconds.
4. Repeat steps 1-3, five consecutive times to complete relearn process.



Technical Bulletin # 1166

Transmission: 6R60

Subject: *Transmission will not Flush with Machine*

Application: Ford, Mercury

Issue Date: April, 2008

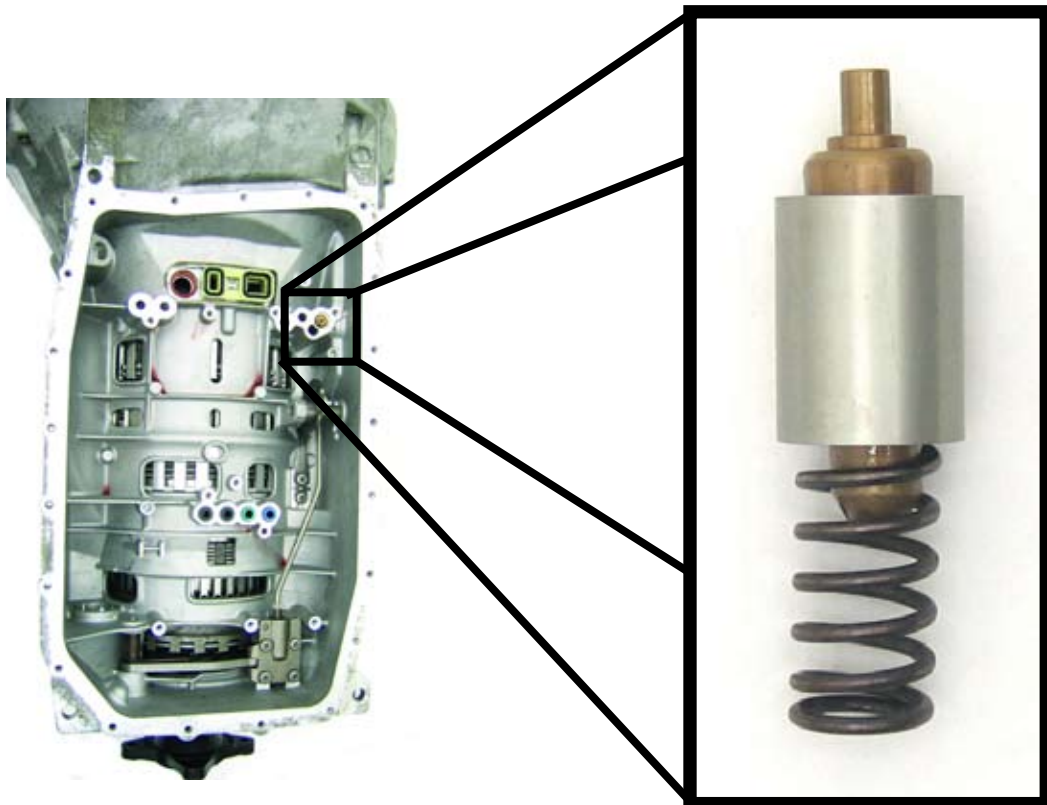
6R60

Transmission will not Flush when using a Flushing Machine

2006-On Explorer 4dr, Mountaineer, 2007-On Explorer Sport Trac, and any other future 6R60 applications.

The 6R60 incorporates a thermal bypass valve that directs cooler flow away from the radiator until fluid temperature reaches between 150-160 °F.

Even if the trans is at operating temperature, the cool fluid coming from the flushing machine will cause the bypass valve to close and redirect fluid away from the cooler.





Technical Bulletin # 1167

Transmission: *TAAT*

Subject: *Vehicle ID*

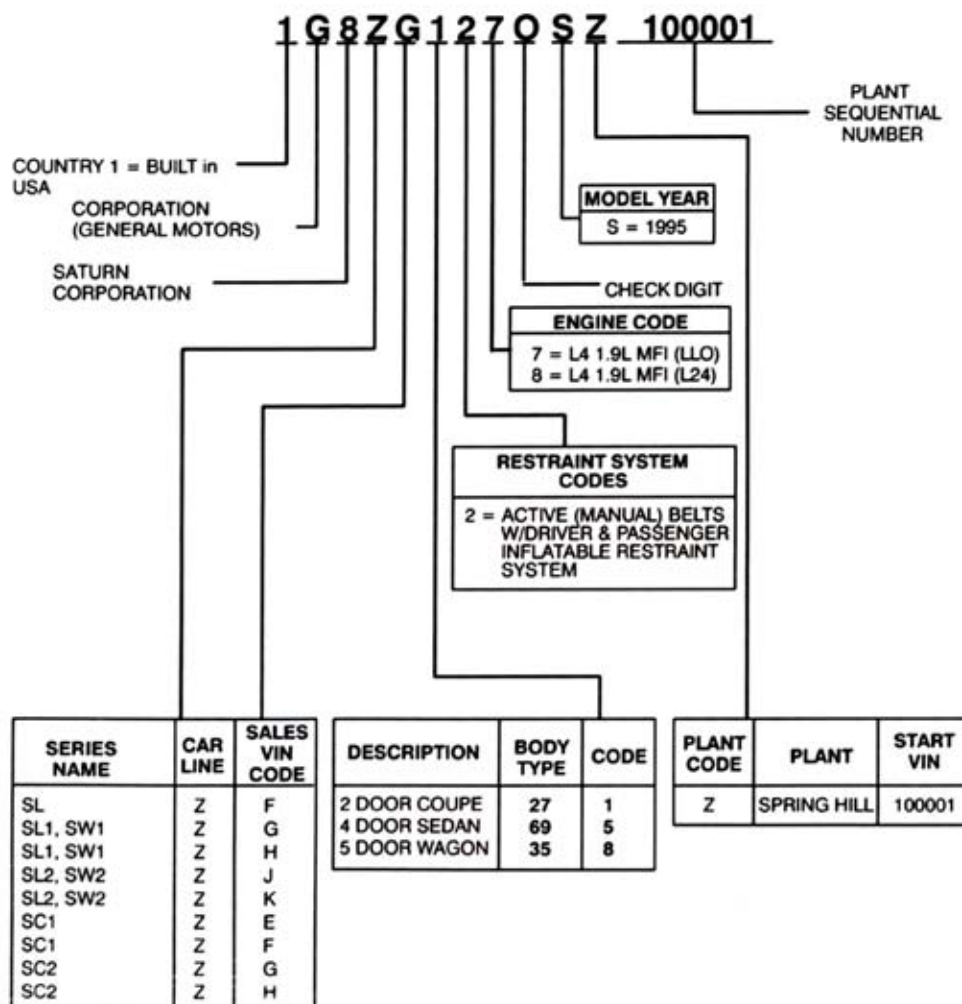
Application: *Saturn*

Issue Date: *April, 2008*

TAAT

Vehicle Identification Plate

The vehicle identification plate, located on the left upper instrument panel, is visible from the outside of the vehicle. This plate contains the vehicle identification number. Each sequential unit number, prefixed by letters and numbers is explained in the following figure. It is important to note when diagnosing for codes and or relearning adapt values, there are different procedures for SL, SL1, SL2, SW1, SW2, SC1, and SC2 models.





Technical Bulletin # 1168

Transmission: 6R60

Subject: Valve Body Small Parts Locations

Application: Ford, Mercury

Issue Date: April, 2008

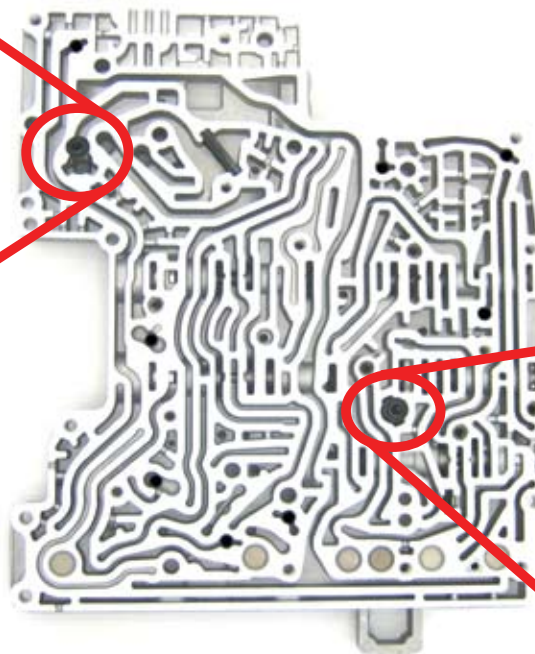
6R60

Valve Body Small Parts Locations

Care should be taken when disassembling the 6R60 Valve Body. There are many small parts located with- in this unit.

Both of these valves are critical to the transmission. The drainback valve is used for converter oil control. The clutch exhaust valve is used to keep the clutches primed.

Drainback Valve

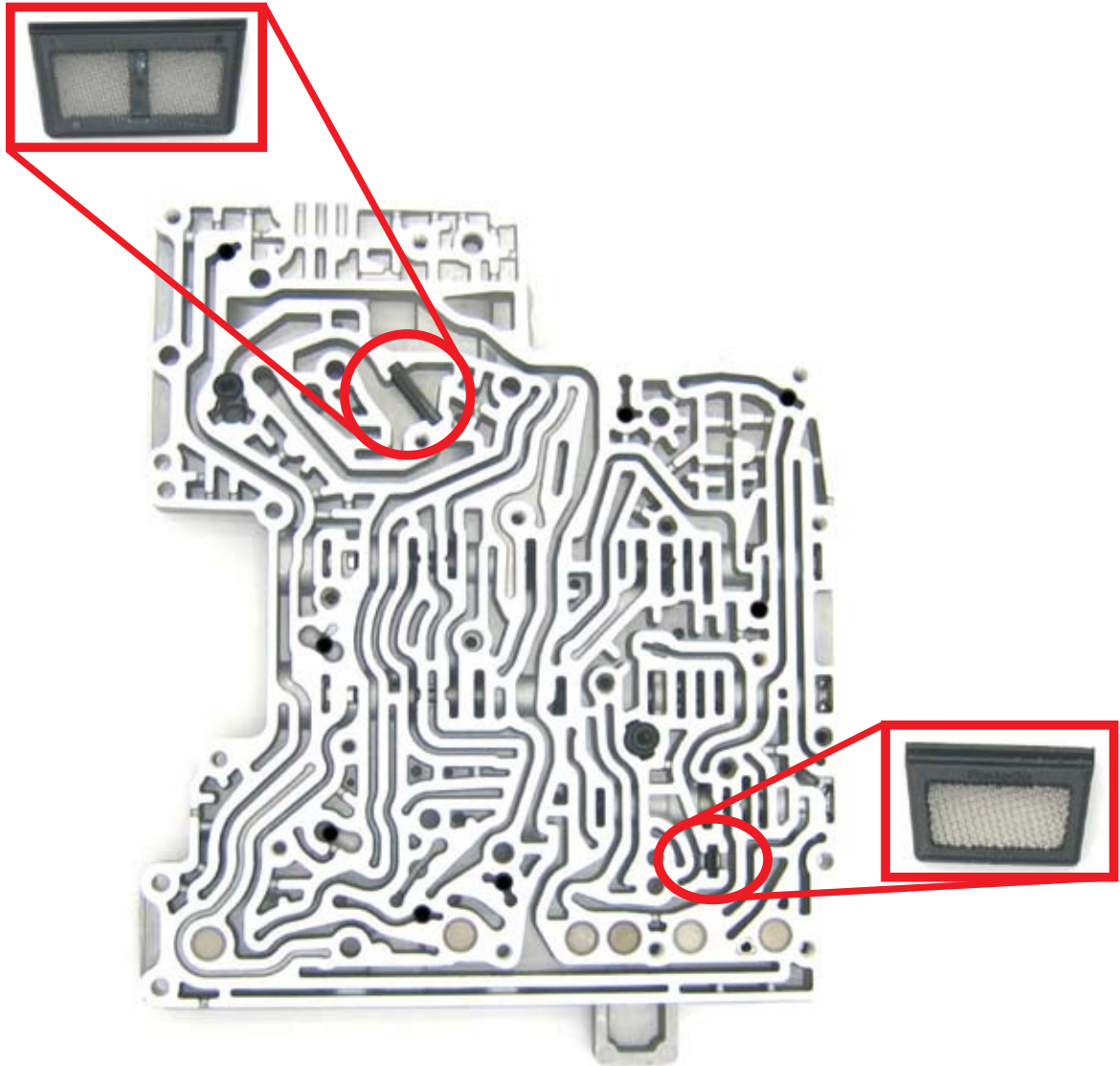


Clutch Exhaust Valve



Solenoid Filters

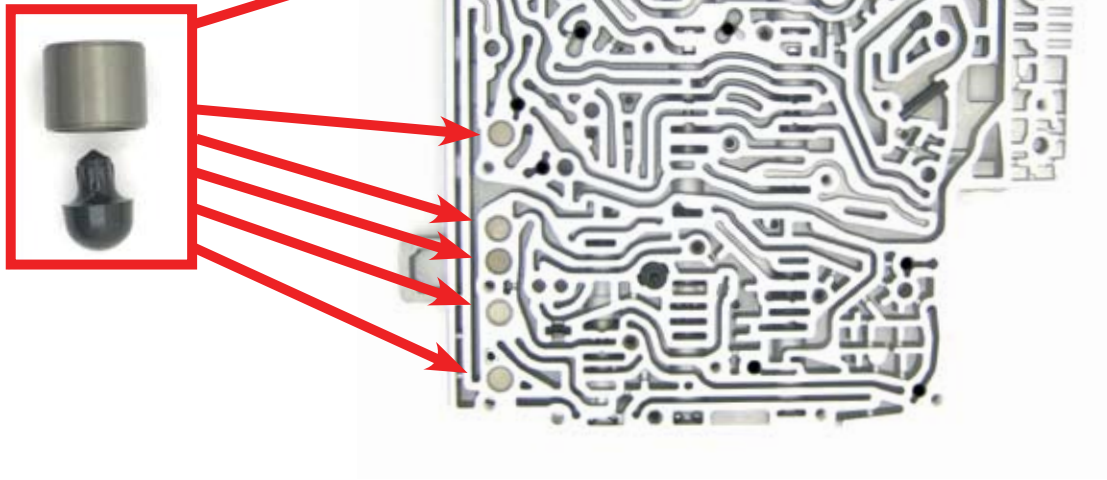
Solenoid filters are critical to the solenoid operation. These screens are used to filter fine particles of debris.



Rubber Accumulators

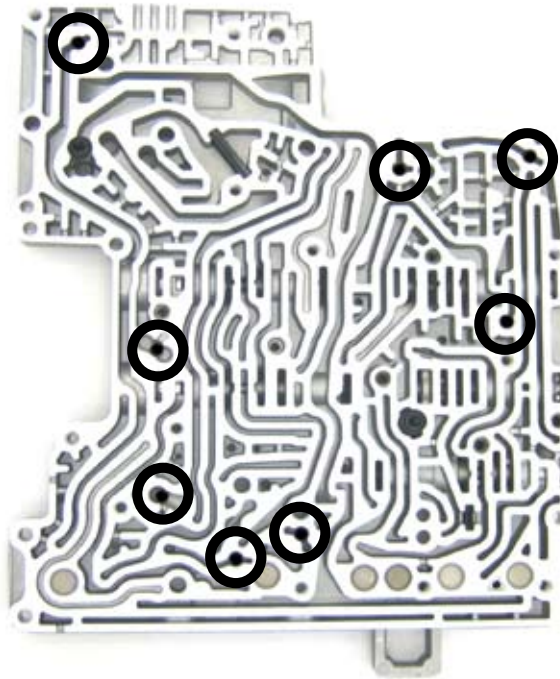
The rubber end goes INTO the valve body. These Solenoid Dampers are actually small accumulators to absorb the small pulses from the PWM solenoids.

**Install the rubber end
in the valve body first**

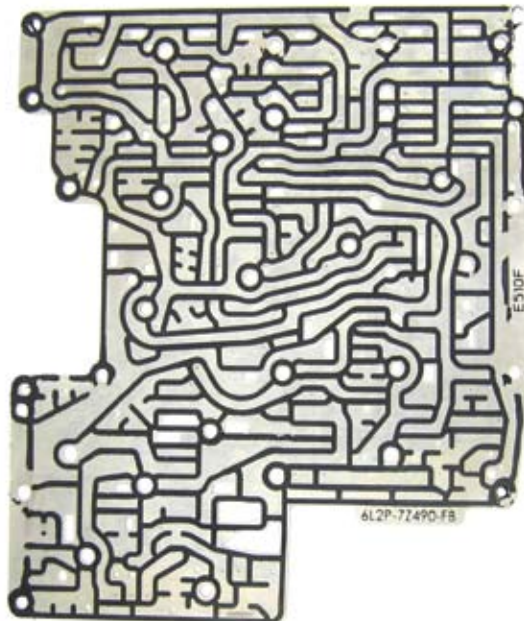


Check Ball Locations and Separator Plate

There are eight (8) check balls in the Upper valve body.

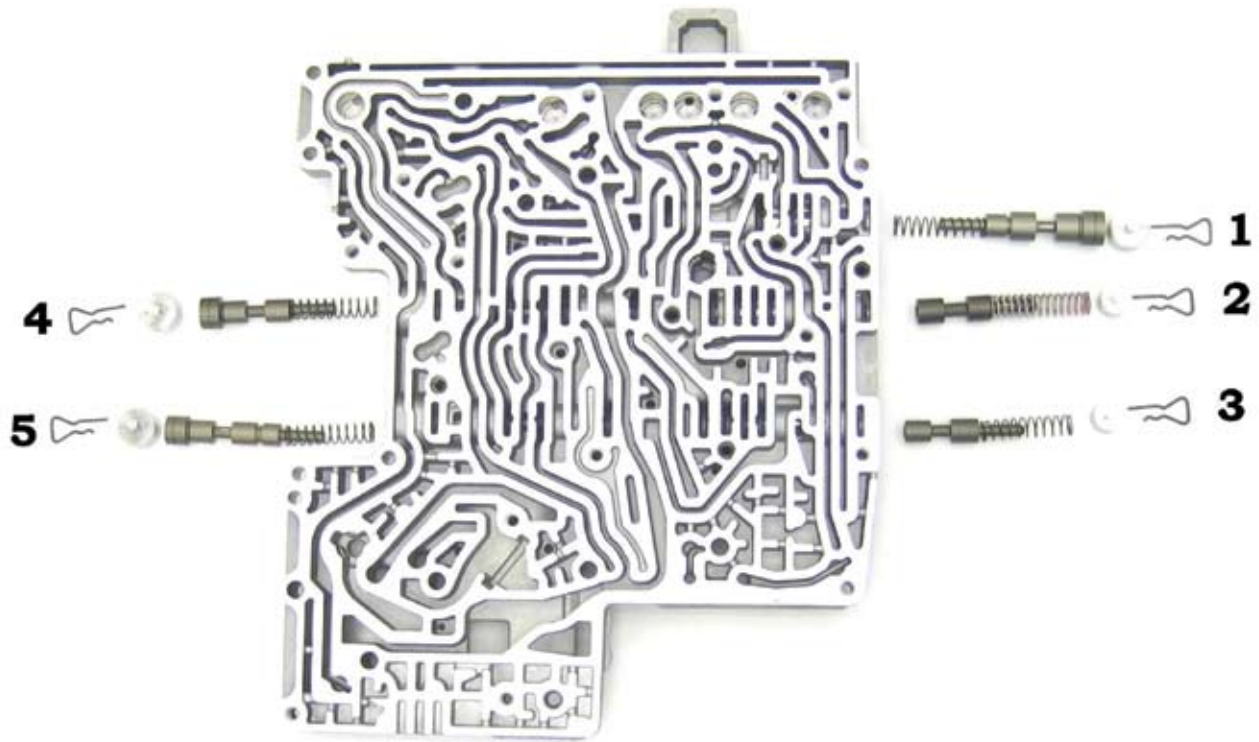


This is a one time only use separator plate. It MUST be replaced on every overhaul. Contact your local parts supplier for the cost.



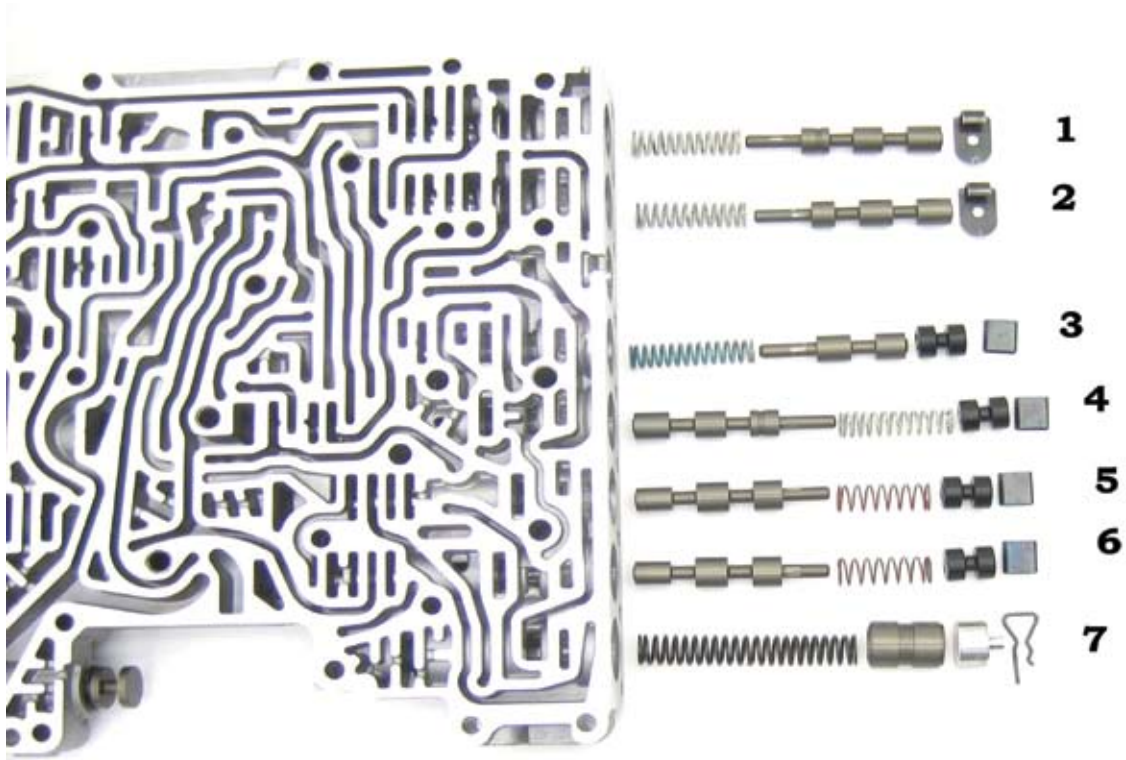
Upper Valve Body Valve Locations

The upper valve body houses five (5) valves. Each one of these valves operate multiple clutches.



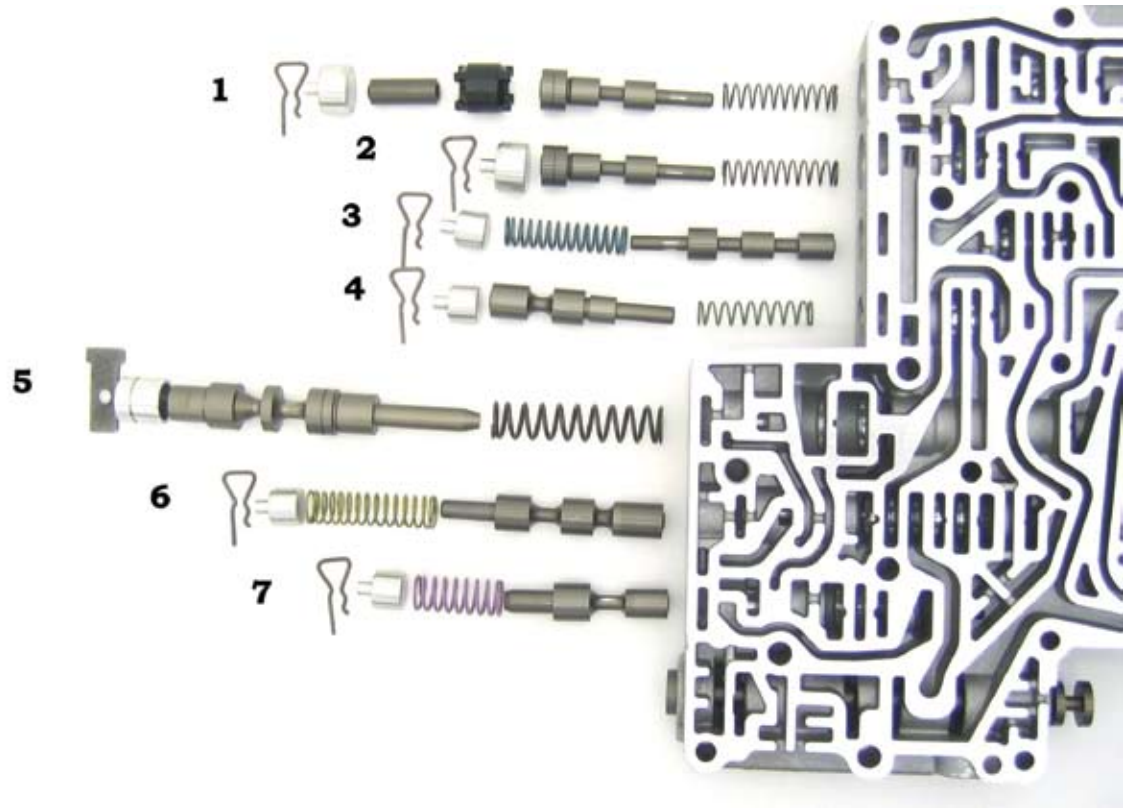
6R60 Upper Valve Body	
1	Clutch B/ Direct Regulator Valve
2	Clutch D2/ Low/Reverse Regulator Valve
3	Clutch D2/ Low/Reverse Latch Valve
4	Clutch C/Intermediate Regulator Valve
5	Clutch D1/Low Reverse Pressure Regulator Valve

Lower Valve Body



Lower Vavle Body Right Side	
1	Clutch A/Forward Latch Valve
2	Clutch B/Direct Latch Valve
3	Solenoid Pressure Regulator Valve
4	Clutch D1/Latch Valve
5	Drive Enable Valve
6	Solenoid Multiplex Valve
7	Delay Accumulator Valve

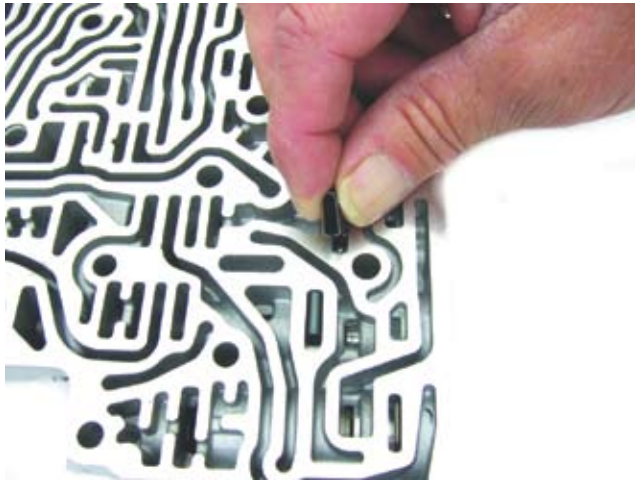
Lower Valve Body



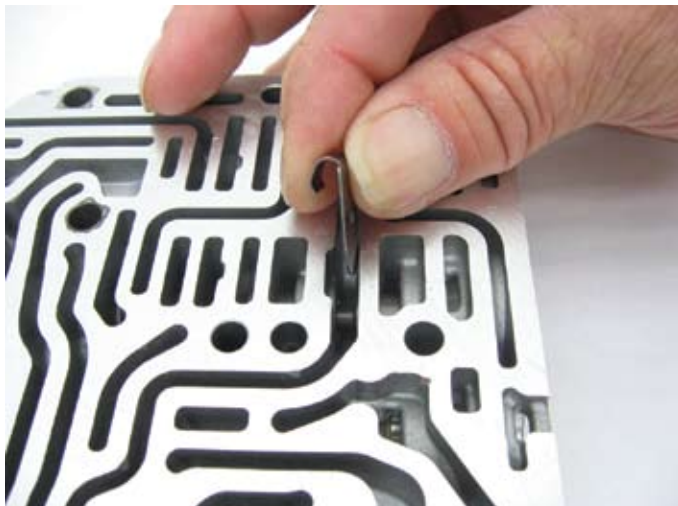
Lower Valve Body Left Side	
1	Clutch A/Forward Control Pressure Regulator Valve
2	Clutch E Control Pressure Regulator Valve
3	Clutch E/OD Clutch Latch Valve
4	Bypass Clutch Control Valve
5	Main Pressure Regulator Valve
6	Converter Release Regulator Valve
7	Lubrication Regulator Valve

Valve Body Retainers

There are three different types of valve and plug retainers. Two of these retainers must be positioned correctly in the valve body or the transmission may not operate correctly. The open end of the retainer is installed into the valve body first.



The Hooked end retainers face the separator plate. The Flat surfaces faces the outside of the bore.





Technical Bulletin # 1169

Transmission: 01M

Subject: *Delayed Engagement into Drive w/ Cold*

Application: VW

Issue Date: April, 2008

01M

Delayed Engagement into Drive When Cold

2002-2005 2.0L Jetta, Beetle, Golf, & Cabrio (Ultra Low Emission Vehicle (ULEV)) vehicles may experience a delayed engagement when cold.

At transmission fluid temperatures below 104 °F (40 °C), transmission does not feel like it immediately goes into gear when shifting from "P" to "D". Lifting on the brake allows the transmission to engage.

This is a normal condition for these vehicles. The cold neutral control function is designed to reduce emissions by taking the engagement load off the engine via the K1 clutch. With the brake applied and transmission in "D", the EV1 solenoid is energized, inhibiting oil to the K1 clutch. When the brake is released, the computer de-energizes EV1 allowing the K1 to apply.

To temporarily disable the cold neutral control function, shift from "P" to "D" then from "D" to "N" or "R" then back to "D". An immediate engagement will occur if transmission is properly functioning.

No modifications or repairs should be attempted when encountering this condition.



Technical Bulletin # 1170

Transmission: *RE5R05A*

Subject: *No Movement*

Application: *Nissan, Infinity*

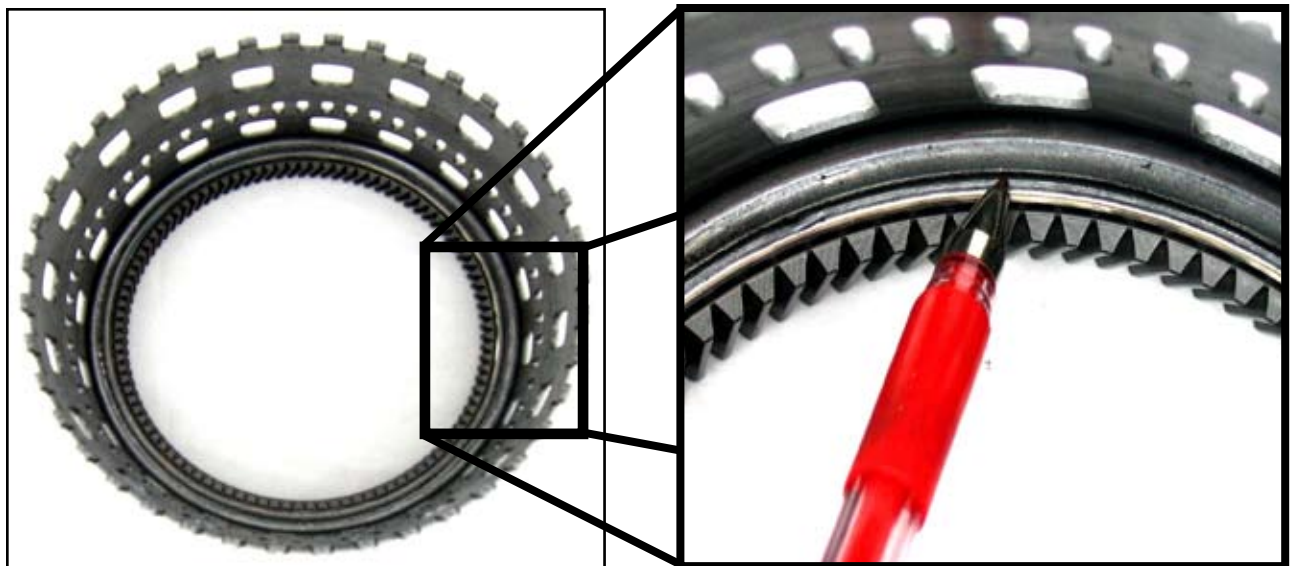
Issue Date: *April, 2008*

RE4R05A

No Movement

A no movement concern may be caused by the rear internal ring gear weld breaking. When the shifter is engaged in the Drive or Reverse position you can feel transmission engage, but there is no movement. The ring gear is still in the shell but the weld is broken and will not come out .

Part # 31450-95X00





Technical Bulletin # 1171

Transmission: ZF5HP19

Subject: *Neutrals in Reverse*

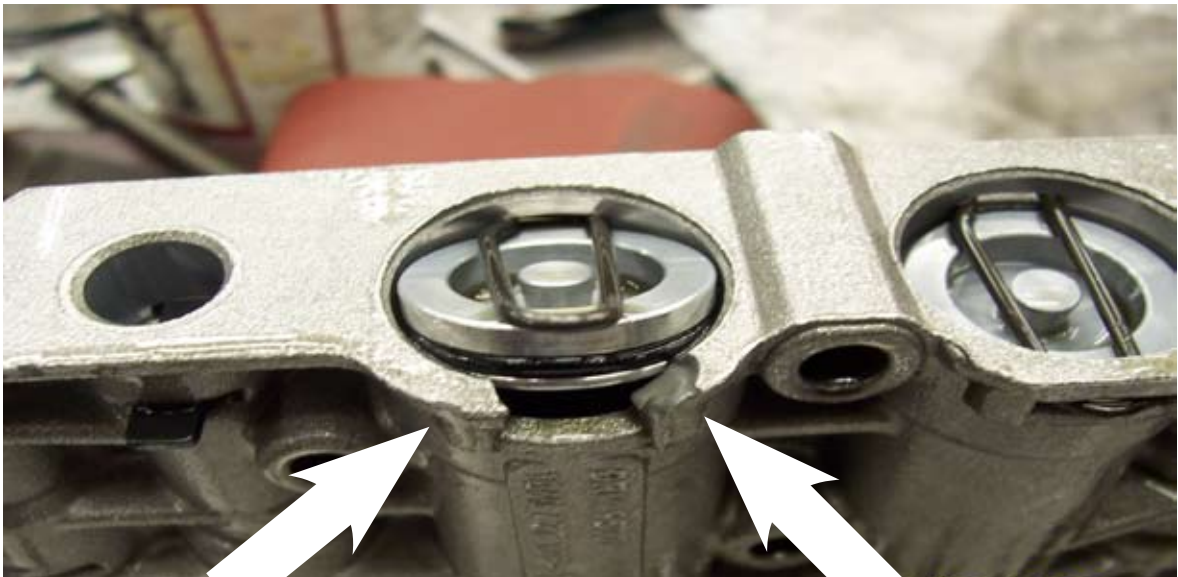
Application: BMW

Issue Date: April, 2008

ZF5HP19

Neutrals in Reverse

Immediately after the reverse engagement the transmission goes into neutral. This may be caused by a broken keeper in the valve body casting. You can replace the valve body assembly or choose to repair it. To repair the valve body you can drill two small holes where the arrows locate, install the clip 180° from its original position. Install the clip ends into the holes drilled.





Technical Bulletin # 1178

Transmission: RE5R05A

Subject: Input Clutch Failure and/or No 4th or 5th Gear

Application: Nissan, Infinity

Issue Date: June, 2008

RE5R05A

Input Clutch Failure and /or No Fourth or Fifth gears

A slipping and/or no fourth and fifth gear may be caused by a cracked weld at the input drum. Pay close attention to the weld area where the shaft meets the drum and look for a fine line crack in the middle of the weld.



"Special thanks to Paul at Paul's Transmission in Fresno, Ca for helping us with this bulletin"



Technical Bulletin # 1179

Transmission: ZF5HP24

Subject: Erratic Shifts and Uncommanded Downshifts

Application: European

Issue Date: June, 2008

ZF5HP24

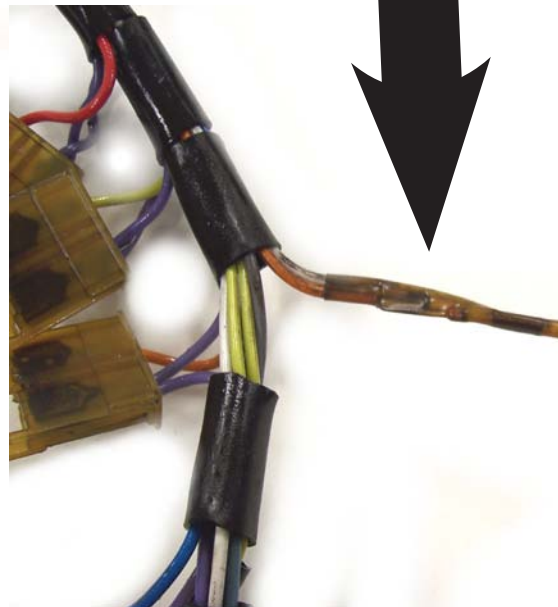
Erratic Shifts and Uncommanded Downshifts

A complaint of erratic shifts and un-commanded downshifts in vehicles using the ZF5HP24 transmission may be caused by A/T Oil temperature sensor wiring being crimped or shorted.

If a code #34 A/T oil temp fault is present, the problem may be located in the crimp on the temp sensor which is integrated into the wiring harness. The wiring harness can be replaced without transmission removal.



Check the
crimp area
for damage



“A Special Thanks to the Techs at Advanced Transmission in Spanish Fort, AL”



Technical Bulletin # 1180

Transmission: 45RFE

Subject: Engine Stalling in Drive-#4 Check Ball Missing

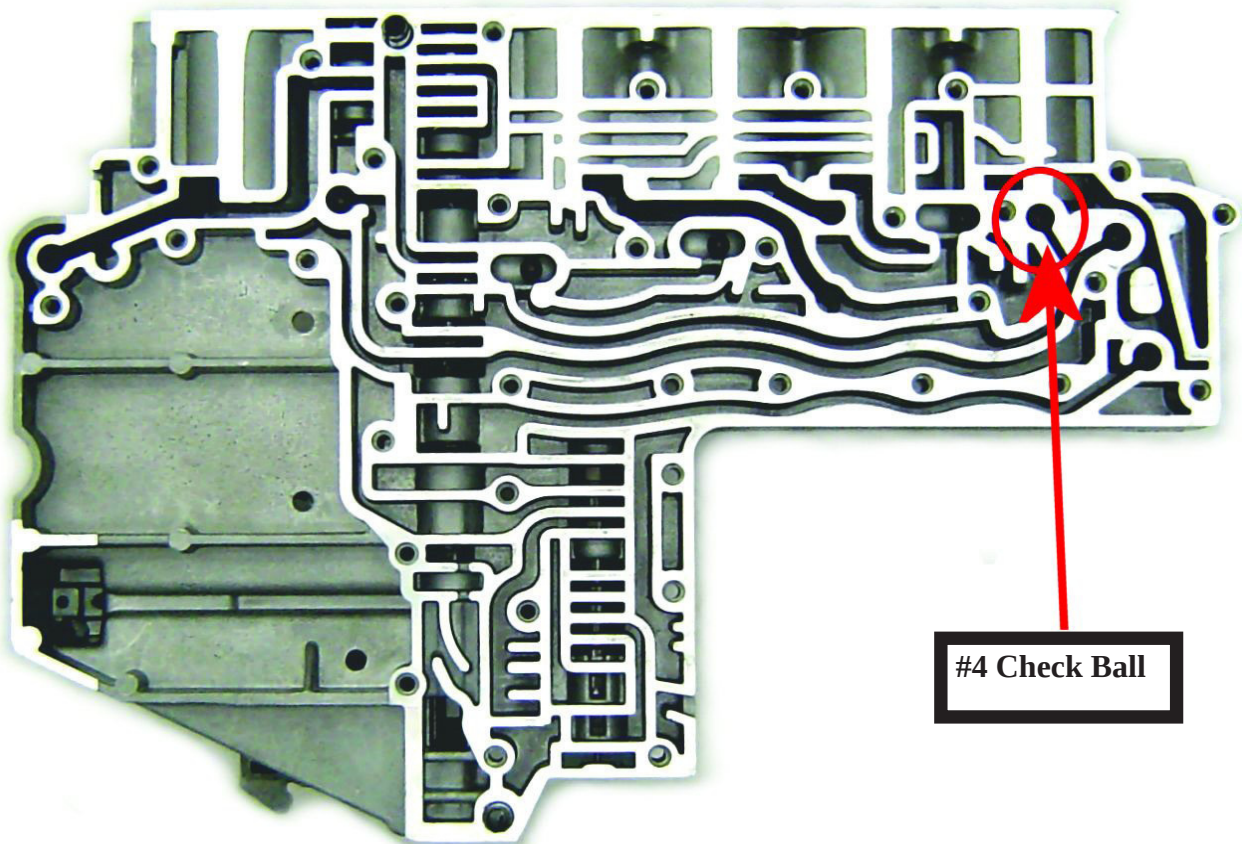
Application: Chrysler, Dodge, Jeep

Issue Date: June, 2008

45RFE

Engine Stalling in Drive-#4 Check Ball Missing

A missing #4 Check Ball will cause the oil in the O/D circuit to leak into the switch valve circuit. From the manual valve, oil that is normally blocked by the #4 check ball feeds into the O/D circuit and ends up between the switch valve pucks, forcing them to separate and move the solenoid switch valve into the TCC position. This causes the L/R solenoid signal to feed the Converter Clutch Regulator valve causing the TCC to apply.



If the #4 Check ball is missing or leaking aggressively, this can cause the solenoid switch valve to be positioned in the TCC apply position. When the L/R-TCC solenoid is engaged in 1st gear this will cause the TCC to engage stalling the engine in Drive.





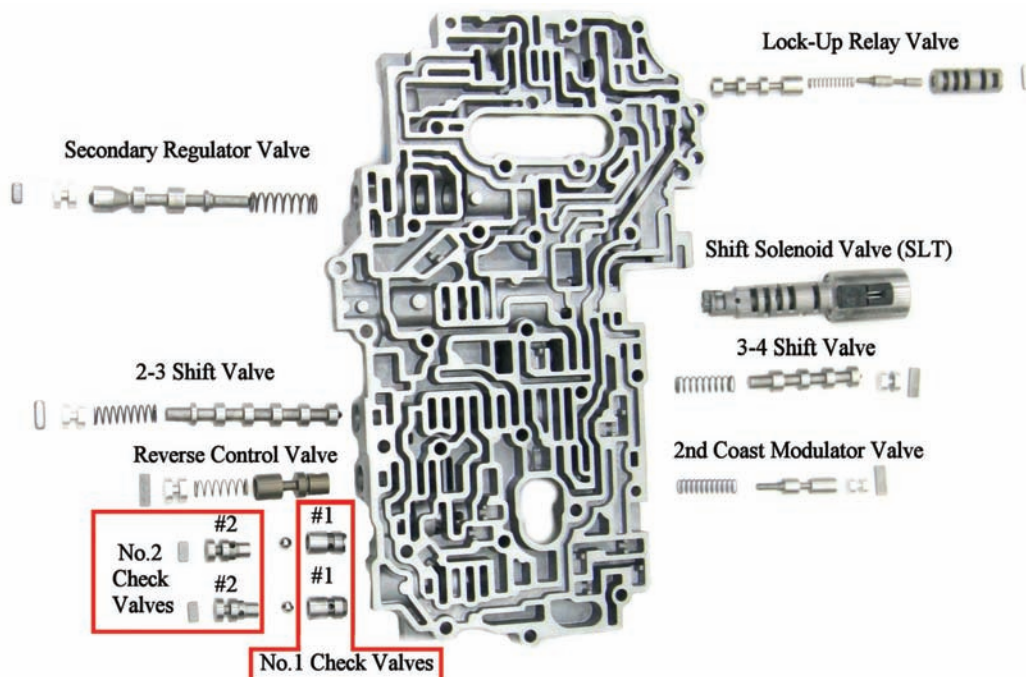
Technical Bulletin # 1181

Transmission: A340 with SLT Solenoid
Subject: Valve Body Exploded View
Application: Toyota, Lexus
Issue Date: June, 2008

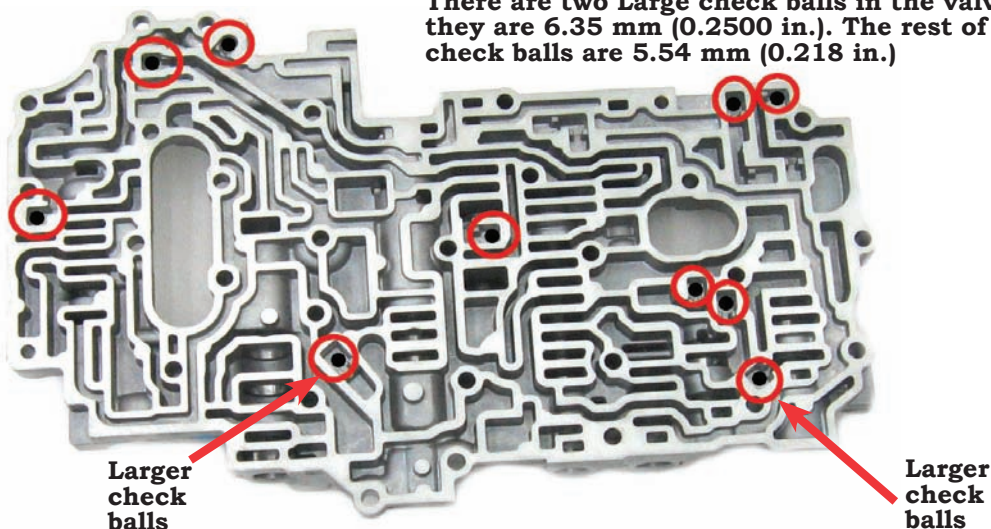
A340 with SLT Solenoid

Valve Body Exploded View

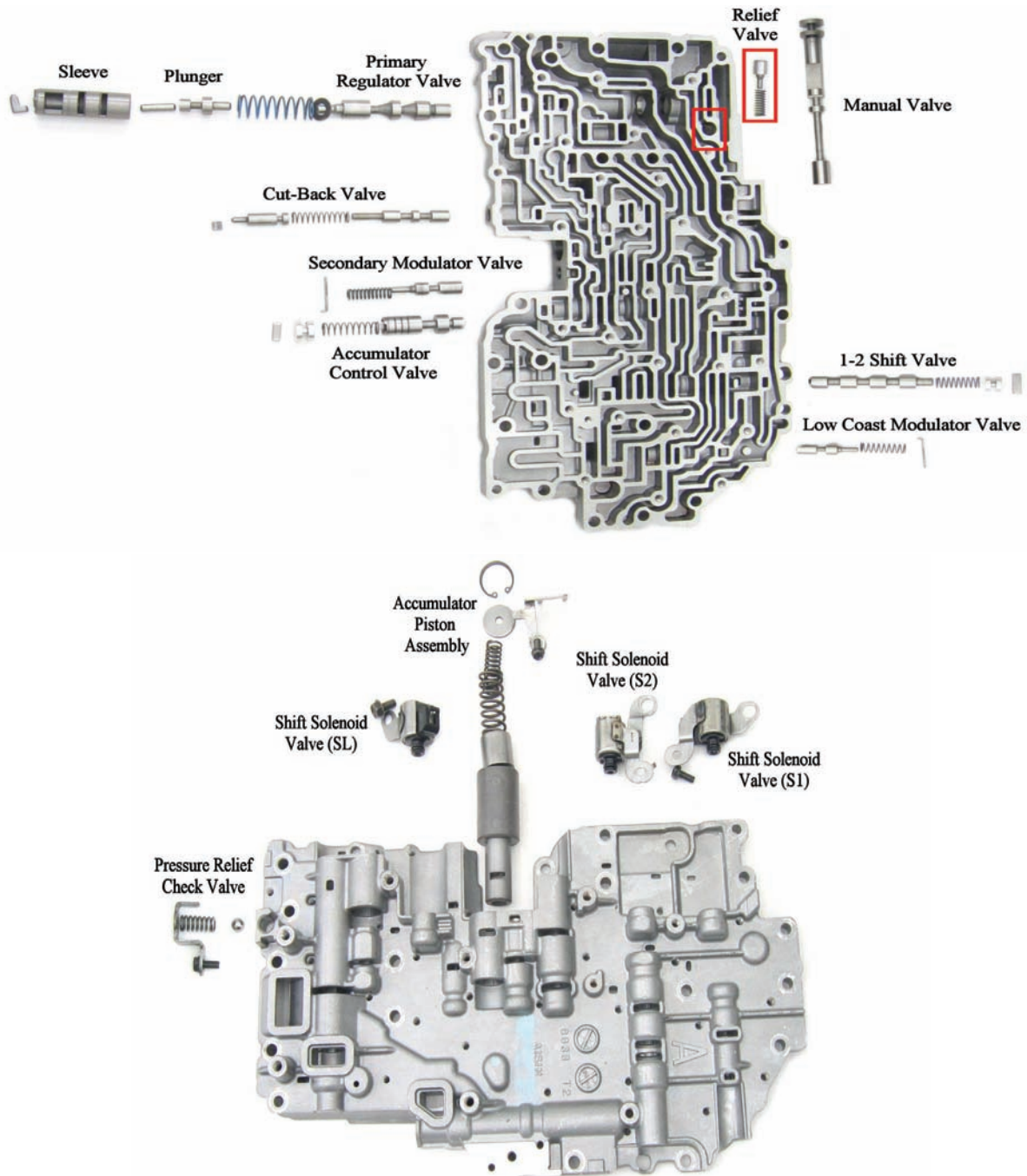
(Refer to ATRA Bulletin # 870 for more Checkball locations)



There are two Large check balls in the valve body, they are 6.35 mm (0.2500 in.). The rest of the check balls are 5.54 mm (0.218 in.)



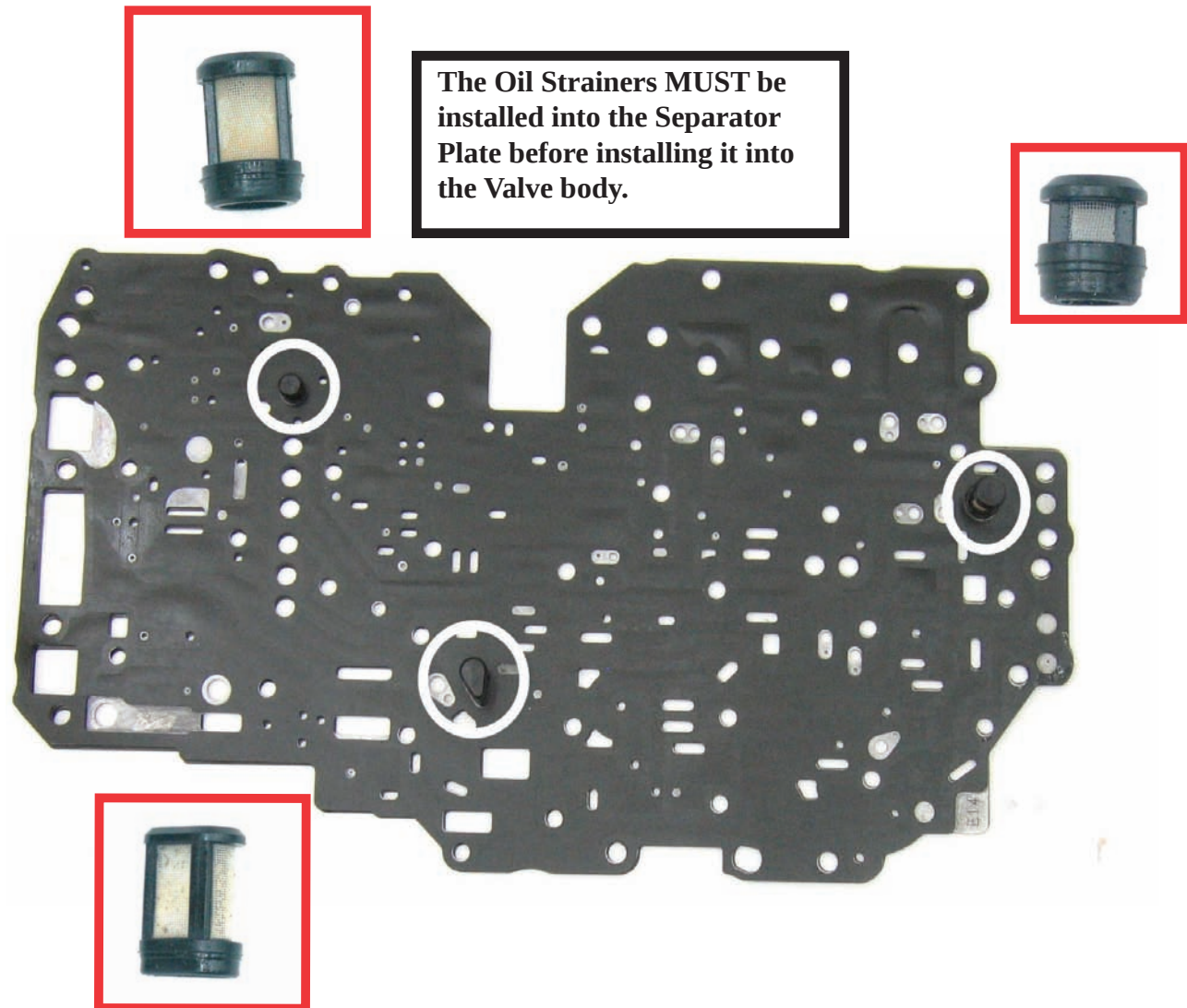
Lower Valve Body Exploded View



Separator Plate Oil Strainers

During the installation, always install the strainers into the valve body separator plate. The strainers have a lip on one side of the element, this lip should snap into the separator plate.

A no reverse or no upshift concern could occur if the strainers are installed into the valve body channel casting and not the separator plate.





Technical Bulletin # 1182

Transmission: 4T75E

Subject: Hesitation or Flat Spot Between 35-50 mph

Application: GMC, Buick, Saturn

Issue Date: June, 2008

4T75E

Hesitation or Flat Spot Between 35-50 mph

2008 Buick Enclave

2007-2008 GMC Acadia

2007-2008 Saturn OUTLOOK with FWD and AWD

A flat spot or hesitation between 35-50 mph maybe caused by a calibration concern. The existing calibration I programmed to maximize the fuel economy and requires a greater throttle input then some customers would prefer to provide under normal acceleration.

The new calibration increases the speed required to obtain upshifts and removes TCC apply from 2nd and 3rd gear, thereby reducing engine lugging and improving the vehicle response to the accelerator input.

Current Calibration			New Calibration	
Shift	MPH	KPH	MPH	KPH
1-2	8	13	12	19
2-3	18	18	20	33
3-4	24	24	31	50
4-5	32	32	43	69
5-6	44	44	56	90



Technical Bulletin # 1183

Transmission: RE5F22A

Subject: Solenoid Identification

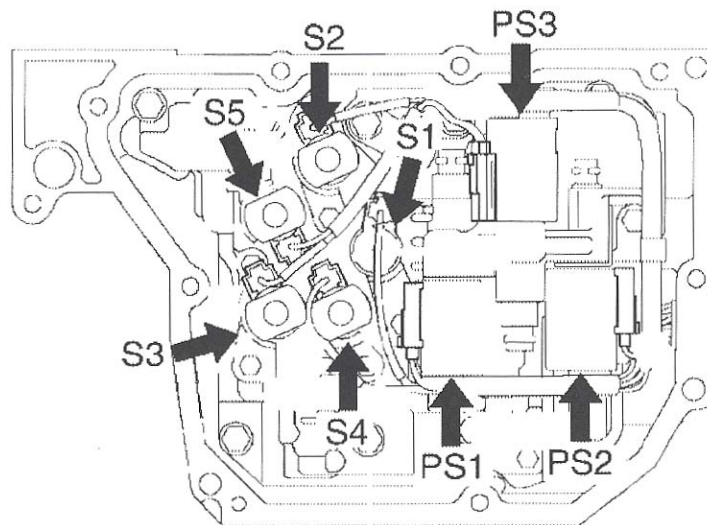
Application: Nissan

Issue Date: June, 2008

RE5F22A

Solenoid Identification

Solenoid identification for the RE5F22A transmission can be hard to find. These are the solenoid identifications provided by Nissan Motor Co.



S1 : Shift solenoid valve A

S2 : Shift solenoid valve B

S3 : Shift solenoid valve C

S4 : Shift solenoid valve D

S5 : Shift solenoid valve E

PS1 : Pressure control solenoid valve A

PS2 : Pressure control solenoid valve B

PS3 : Pressure control solenoid valve C



Technical Bulletin # 1184

Transmission: Borg Warner T-Case

Subject: Erratic T-Case Operation, Erratic Codes

Application: Ford, Mucury

Issue Date: June, 2008

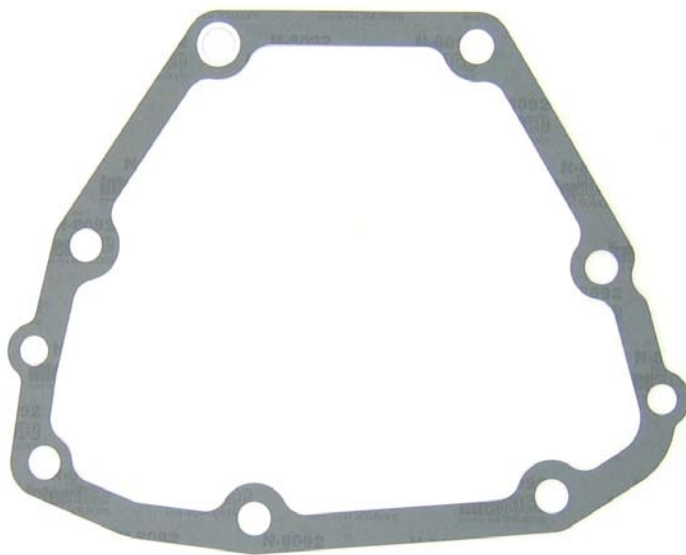
Borg Warner T-Case

Erratic Transfer Case Operation, Erratic Codes

You may encounter a 2004 and later Explorer, Mountaineer or Expedition experiencing erratic transfer case system operation. You may also encounter numerous or alternating codes coming from the transfer case control system.

Codes relating to mode switch circuit problems or encoder/motor circuit problems are the most common codes to be set. If the transfer case has been previously removed, this condition may be caused by “not” replacing the transfer case to transmission case gasket. Ford is using a special gasket with a metal ring built into the gasket.

The purpose of this metal ring is to allow the transfer case housing to ground through the transmission case. The bolts that attach the transfer case to the transmission are coated with a special anti-corroding coating and do not allow for a good ground. Installing an early paper gasket or adding silicone to the mating surfaces will interfere with the transfer case grounding through the transmission case. Ford recommends replacing this gasket every time the transfer case is removed. The Ford part # is 4L2Z-7086-AA



The purpose of this metal ring is to allow the transfer case housing to ground through the transmission case.





Technical Bulletin # 1117A

Transmission: 4L80E

Subject: Planetary Damage, Pump Interchange

Application: GM

Issue Date: July, 2008

4L80E

Planetary Damage, Pump Interchange

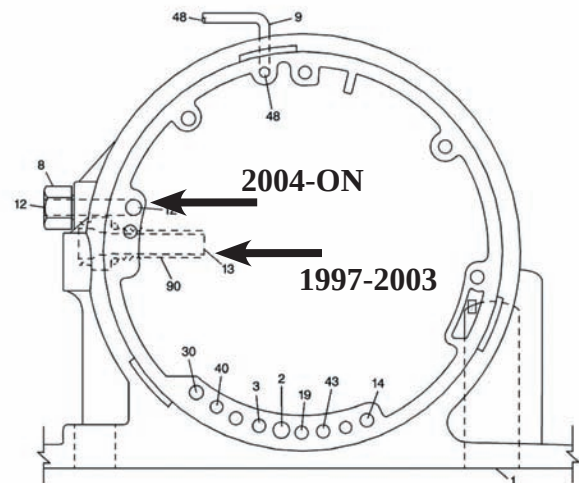
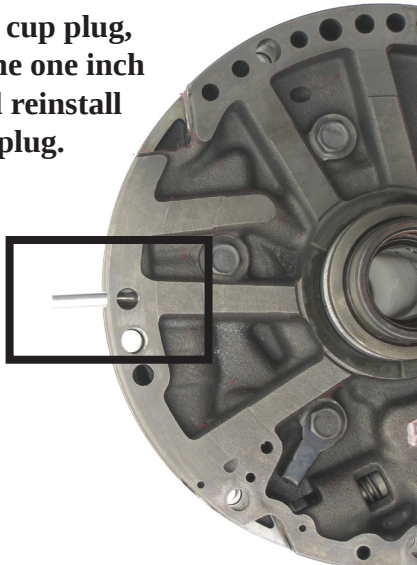
An update to the pump cover occurred for 2004-06 model years on all 4L80E/85E applications. The pump cover part number was changed to accommodate interim case changes that occurred. The following part numbers for the pump cover based on model year.

1997-2003	24204303
2004-2006	24232405

1997-2003 pumps are interchangeable if you use GM Plug Kit #24232339

This is a simple plug kit. Remove cup plug, install the one inch slug and reinstall the cup plug. If a kit is not available from your parts supplier you can make your own. The size of this slug is one inch long and .247" in diameter, (1 x .247)

**Remove cup plug,
install the one inch
slug and reinstall
the cup plug.**



**1997-2003 pumps are
interchangeable if
you use GM Plug Kit
#24232339**



Technical Bulletin # 1185

Transmission: AWF-21

Subject: Harsh, Delayed, Slip, Clunk Noise

Application: Ford, Mercury

Issue Date: July, 2008

AWF-21

Harsh Shift and/or Clunk Noise, Delayed Shift and/or Perceived Slip/Engine Flare

Vehicles built before 3/31/06 may experience shift concerns when the vehicle mileage gets above 20,000 miles (32,000km). Shift concerns are generally noticed during passing maneuvers with transmission operating temperatures greater than 212°F (100°C) operating temperatures. Symptoms may be present during a 5-3 downshift at 35 mph (56k/mh) and/or 4-3 at 20 mph (32km/h) with throttle opening at approximately 50% or greater.

Service procedure:

1. If there are any diagnostic trouble codes (DTCs) present in the transmission control module (TCM)/powertrain control module (PCM) DO NOT continue with this TSB. Repair all other codes first.
2. If no DTCs are present and mileage is below 20,000 miles (32,000 km) reprogram TCM/PCM and retest.
3. If no DTCs are present and vehicle is over 20,000 miles (32,000km), fluid should be drained and checked for excessive contamination. If fluid is clean, the valve body should be replaced and the TCM/PCM updated to the latest calibration level.
4. If excessive contamination is present. Remove and inspect the transmission, repair as necessary. Reprogram the PCM and the TCM to the latest calibration. Recalibration files may obtained at www.motorcraft.com.

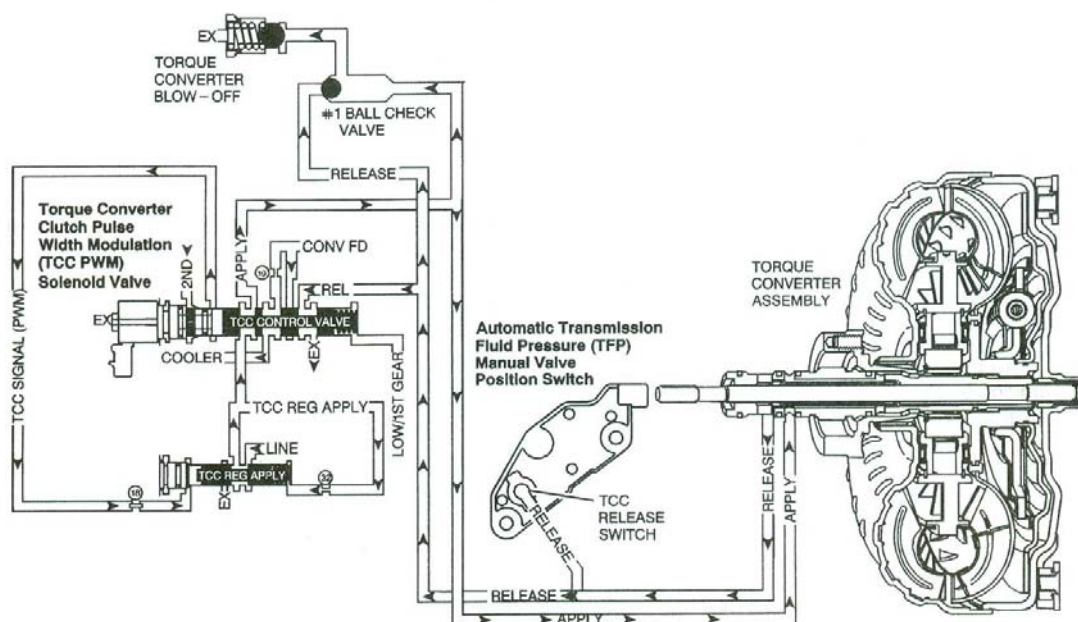


Subject: *TCC Applying on Top of 2nd Gear and P0742*

Issue Date: *July, 2008*

TCC Applying on Top of Second Gear and P0742

Anytime lock up is disengaged, the switch will be in the open position and “TCC release” PID on your scanner will display “on” with the release oil against the switch contact. When the TCC release oil is exhausted, (Lock Up) the switch moves to the closed position as the release oil is exhausted and “TCC release” on your scanner will display “off”. It is common for a switch to fail in the closed position and trick the computer into thinking that the release oil is exhausted and that lock up is stuck on. The PCM strategy for this code is to ground the TCC solenoid which results in lock up on top of second gear and freeze the adaptive strategies.

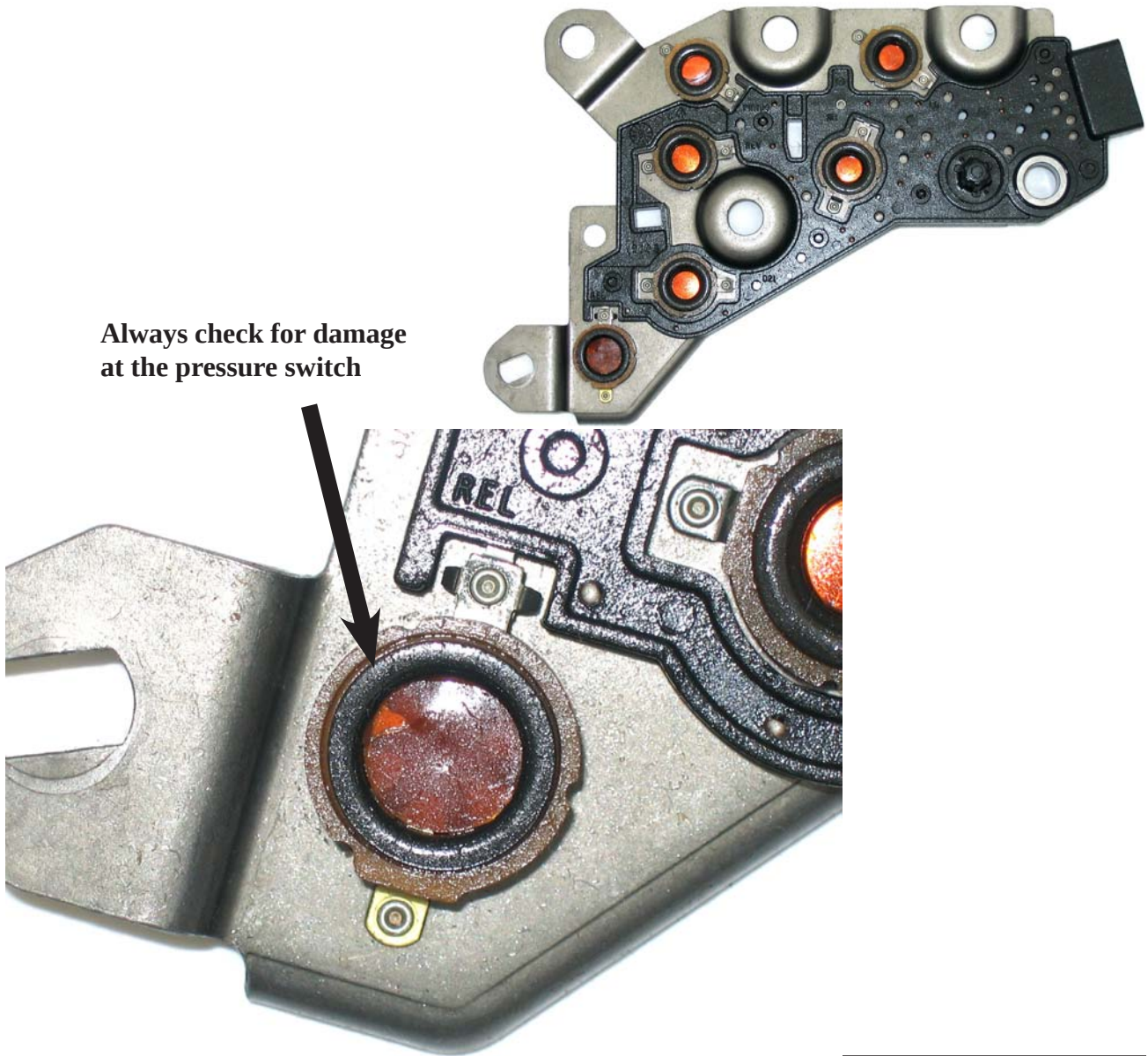


Technical Bulletin # 1186

The part that can be confusing is, if the TCC solenoid has mechanically failed, the same code and drivability issue may occur. Use the following diagnostic procedures to accurately separate a bad solenoid or PSM.

1. When the code is set and TCC is engaged in second gear, clear the codes with your scanner. If TCC releases and works again until the code sets, the PSM is faulty.
2. Find the functional test section in your scanner. While driving engage and disengage lock up with the scanner. If TCC responds correctly to the scanner commands, you have tested the entire electrical and mechanical parts of lock up. Replace PSM.
3. Unplug the transmission. Run the engine and put the shifter in drive. If the engine stalls replace the solenoid.

**Always check for damage
at the pressure switch**





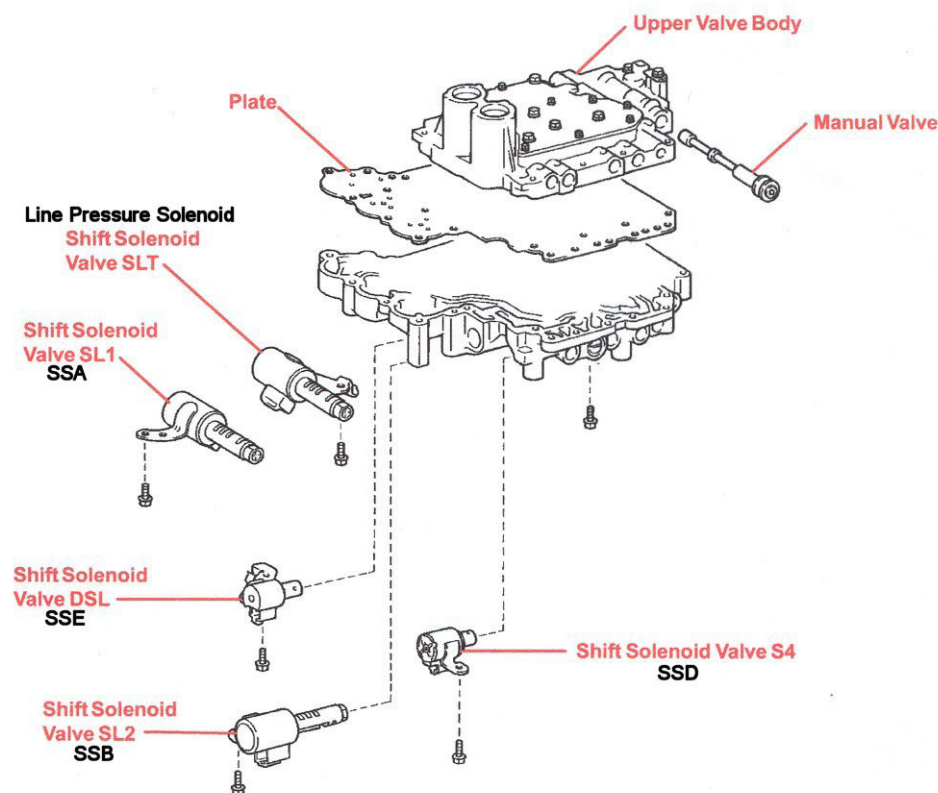
Technical Bulletin # 1187

Transmission: U140F
Subject: Solenoid Identification
Application: Toyota
Issue Date: July, 2008

U140F

Solenoid Identification

Solenoid identification is a crucial part of the rebuild and diagnostic procedure. It is important to understand the correct location and terminology of the parts. The following image and chart depict the location and the proper names of the solenoids.



Solenoid Description	Repair Manual Solenoid Name	Part Catalog Description
SSA	SL1	Solenoid Assembly, Clutch Control No. 1
SSB	SL2	Solenoid Assembly, Clutch Control No. 2
SSD	S4	Solenoid Assembly, Transmission 3-way (No. 2)
Line Pressure	SLT	Solenoid Assembly, Line Pressure Control
SSE	DSL	Solenoid Assembly, Transmission 3-way



Technical Bulletin # 1188

Transmission: *RE5R05A*

Subject: *Computer Diagnostics*

Application: *Nissan, Infinity*

Issue Date: *July, 2008*

RE5R05A

Computer Diagnostics

There are two separate controller systems that are used for the RE5R05A transmission applications. The TCM and the ECM are separate controllers that share information through a multiplex type system.

The TCM is located in the transmission on the later vehicles and on the right kick panel on earlier model vehicles. The TCM includes all of the Transmission electronics, the TCM, Solenoids, TRS, ISS, OSS and Pressure switch circuit board. This makes diagnosing the RE5R05A difficult if you don't have the correct scan tool or the proper adapters for the scan tool. The Function of the TCM is to:

- Receive information from the input signals sent from the various switches and sensors mounted on the transmission and share information from the ECM.
- Determine required pressures, shift points, lock-up operation, and engine breaking operation based on the various switches and sensors.

TCM Function

The TCM is constantly learning, this is called adaptive strategy. During this process the TCM is constantly monitoring the driving conditions and driver behavior.

Adaptive Strategy allows the customer to feel a flawless shift until the transmission is not capable of that shift. Typically this is at about the 75,000-100,000 mile marker. During and up until that time of repair the TCM is constantly raising and lowering pressures.

This could cause you problems after an overhaul, if the computer is not reset.

NOTE: It is always recommended to reset the adaptive strategies before test driving the vehicle after overhaul.

Technical Bulletin # 1188

Before the transmission can start its adaptive learning process, the TCM must first relearn some very important parameters. The vehicle must be cleared of codes and at normal operating temperature. The following Relearn procedures **MUST** be done if the Battery, Sensor connector, TCM or ECM is disconnected!

Adaptive Strategies

All of these relearns can be done using the Consult 2 or manually. Be aware that all of the manual relearn procedures are done using time specifications.

NOTE: The technician must use a clock to determine the time sequences.

1. Accelerator Pedal Released Position Learning:

This is an operation to learn the fully released position of the Accelerator Pedal Position by monitoring the output signal.

Operation Procedure:

1. Make sure the accelerator pedal is fully released.
2. Turn the ignition switch to the ON position, wait at least 2 seconds.
3. Turn the ignition switch to the OFF position, wait at least 10 seconds.
4. Turn the ignition switch to the ON position, wait at least 2 seconds.
5. Turn the ignition switch to the OFF position, wait at least 10 seconds.

2. Throttle Valve Closed Position Learning:

This is an operation to learn the fully closed position of the Throttle Valve Position by monitoring the output signal.

Operation Procedure:

1. Make sure the accelerator pedal is fully released.
2. Turn the ignition switch to the ON position.
3. Turn the ignition switch to the OFF position, wait at least 10 seconds. (make sure the throttle valve moves during the 10 seconds in the OFF position by confirming the operating sound.)

3. Idle Air Volume Learning:

Before performing Idle Air Volume Learning, make sure the following conditions are met. The learning procedure will stop if any of the following are not met prior to starting the procedure.

1. Battery Charging Voltage: More than 12.9V
2. Engine Coolant: (70 - 100°C) 158 - 212°F
3. PNP Switch: ON:
4. Electrical Loads: OFF (A/C, Head lamps, Rear Window Defogger) NOTE: On vehicles equipped with daytime running light systems, apply the parking brake **BEFORE** you turn the ignition switch to the on position, this will keep the lights OFF.
5. Steering Wheel: Neutral (Straight-ahead position)
6. Vehicle Speed: Stopped
7. Transmission: Operation temperature

1. Perform the Accelerator Pedal Released Position Relearn procedure.
2. Perform the Throttle Valve Closed Position Relearning procedure.
3. Start the engine and run it until it reaches operation temperature.
4. Once the engine is at operating temperature, turn the ignition OFF and wait for 10 second
5. Confirm the Accelerator Pedal is fully released, turn the ignition ON and wait for 3 seconds.
6. Repeat the following procedures below QUICKLY five times within five seconds. (A. Fully depress the accelerator pedal.) (B. Fully release the accelerator pedal..)
7. Wait 7 seconds, fully depress the accelerator pedal and keep it there for approximately
8. 20 seconds until the MIL stops blinking and turned ON.
9. Fully release the accelerator pedal within 3 seconds after the MIL light goes OUT.
10. Start the engine and let it idle.
11. Wait 20 seconds
12. Rev the engine two or three times and make sure the idle speed and ignition timing
13. are within the specifications. (In the P or N position Idle 650 RPM +/- 50, 15 BTDC)
14. If the engine is not idling properly, the relearn procedure did not take or there is a problem with other engine related components.

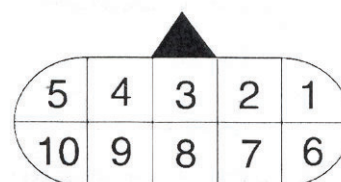
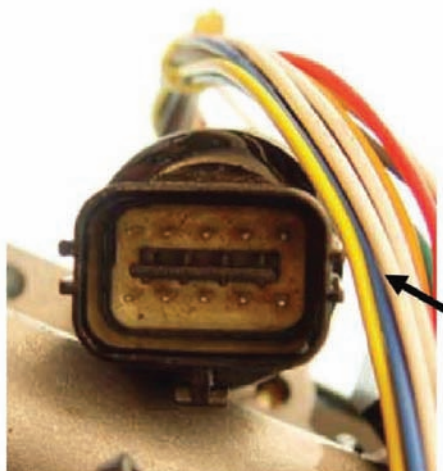
Input/Output Signal of TCM								
Control item		Line pressure control	Vehicle speed control	Shift control	Lock-up control	Engine brake control	Fail-safe function (*3)	Self-diagnos- tics function
Input	Accelerator pedal position signal (*4)	X	X	X	X	X	X	X
	Vehicle speed sensor A/T (revolution sensor)	X	X	X	X		X	X
	Vehicle speed sensor MTR(*1) (*4)	X	X	X	X			X
	Closed throttle position signal(*4)	(*2) X	(*2) X		X	(*2) X		X
	Wide open throttle position signal(*4)	(*2) X	(*2) X			(*2) X		X
	Turbine revolution sensor 1	X	X		X		X	X
	Turbine revolution sensor 2 (for 4th speed only)	X	X		X		X	X
	Engine speed signals(*4)				X			X
	PNP switch	X	X	X	X	X	X	X
	A/T fluid temperature sensors 1, 2	X	X	X	X	X	X	X
	ASCD	Operation signal(*4)	X	X	X	X		
		Overdrive cancel signal(*4)	X		X	X		
	TCM power supply voltage signal	X	X	X	X	X		X
Out- put	Direct clutch solenoid (ATF pressure switch 5)		X	X			X	X
	Input clutch solenoid (ATF pressure switch 3)		X	X			X	X
	High & low reverse clutch solenoid (ATF pressure switch 6)		X	X			X	X
	Front brake solenoid (ATF pressure switch 1)		X	X			X	X
	Low coast brake solenoid (ATF pressure switch 2)		X	X		X	X	X
	Line pressure solenoid	X	X	X	X	X	X	X
	TCC solenoid				X		X	X
	Self-diagnostics table(*4)							X
	Starter relay						X	X

*1: Spare for vehicle speed sensor A/T (revolution sensor)
 *2: Spare for accelerator pedal position signal
 *3: If these input and output signals are different, the TCM triggers the fail-safe function.
 *4: CAN communications

Technical Bulletin # 1188

DTC		Items (Consult-II Screen Terms)
OBD-II	Except OBD-II	
Consult-II GST (*1)	Consult-II only "A/T"	
N/A	P0615	Starter Relay Circuit
P0700	P0700	TCM
P0705	P0705	PNP Switch Circuit
P0710	P1710	ATF Temperature Sensor Circuit
P0717	P0717	Turbine Revolution Speed Sensor
P0720	P0720	Vehicle Speed Sensor Circuit A/T
N/A	P0725	Engine Speed Signal
P0740	P0740	TCC Solenoid Circuit
P0744	P0744	A/T TCC Solenoid Voltage Function
P0745	P0745	Line Pressure Solenoid Circuit
N/A	P1705	Throttle Position Sensor Circuit Meter
N/A	P1721	Vehicle Speed Sensor Circuit Meter
P1730	P1730	A/T Interlock
N/A	P1731	A/T 1st Braking
P1752	P1752	I/C Solenoid Circuit
P1754 (*2)	P1754	I/C Solenoid Function
P1757	P1757	FR/B Solenoid Circuit
P1759 (*2)	P1759	FR/B Solenoid Function
P1762	P1762	D/C Solenoid Circuit
P1764 (*2)	P1764	D/C Solenoid Function
P1767	P1767	HLR/C Solenoid Circuit
P1769	P1769	HLR/C Solenoid Function
P1772	P1772	LC/B Solenoid Circuit
P1774	P1774	LC/B Solenoid Function
N/A	P1815	Manual Mode Switch Circuit
N/A	P1841	ATF Pressure Switch #1 Circuit
N/A	P1843	ATF Pressure Switch #3 Circuit
N/A	P1845	ATF Pressure Switch #5 Circuit
N/A	P1846	ATF Pressure Switch #6 Circuit
U1000	U1000	CAN Communication Circuit
*1: These Numbers are prescribed by SAE J2012		
*2: These malfunctions cannot be displayed MIL if another malfunction is assigned to MIL		

TCM pins for late model units with the TCM in the transmission.



TCM INSPECTION TABLE

Data are reference value and are measured between each terminal and ground.

Terminal No.	Wire color	Item	Condition		Data (Approx.)
1	P	Power supply (Memory back-up)	Always		Battery voltage
2	P	Power supply (Memory back-up)	Always		Battery voltage
3	L	CAN-H	—		—
4	V	K-line (CONSULT-II signal)	The terminal is connected to the data link connector for CONSULT-II.		—
5	B	Ground	Always		0V
6	BR *1 Y/R *2	Power supply		—	Battery voltage
				—	0V
7	R	Back-up lamp relay		Selector lever in "R" position.	0V
				Selector lever in other positions.	Battery voltage
8	P	CAN-L	—		—
Terminal No.	Wire color	Item	Condition		Data (Approx.)
9	B/R	Starter relay		Selector lever in "N", "P" positions.	Battery voltage
				Selector lever in other positions.	0V
10	B	Ground	Always		0V

*1: Column shift

*2: Floor shift



Technical Bulletin # 1193

Transmission: RE5R05A
Subject: Band Adjustment
Application: Nissan, Infinity
Issue Date: August, 2008

RE5R05A

Band Adjustment

Adjusting the band is pretty straightforward:

- Use a brake band clip or equivalent to make sure the band contacts the shell assembly.
- Loosen the anchor locknut and tighten the anchor end pin to 50 in. lbs. for early models (2003-2005) and 44 in-lbs for late models (2006-up)
- Mark the anchor pin with a marker.
- Back off the anchor end pin exactly 2 1/2 turns for early models (2003-2005) and 3 turns for late models (2006-up)
- Hold the pin in place and tighten the locknut.

This will be your last and only chance to adjust the band with ease, once the transmission is in the vehicle, it's a very tight fit, providing almost no access to the band anchor.

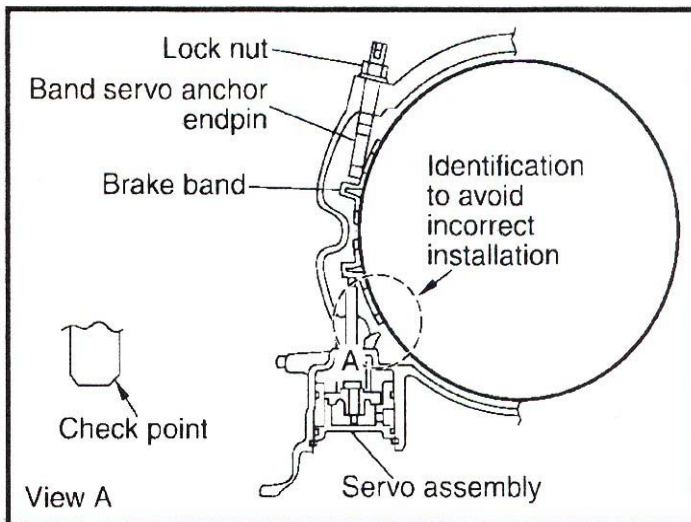


Install the servo assembly



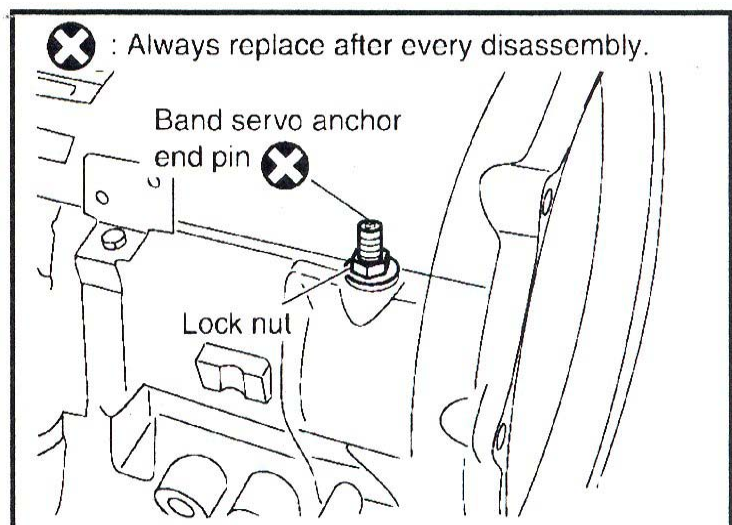
Technical Bulletin # 1193

Make sure the servo rod and anchor pin is touching the band supports



Tighten the anchor end pin to 50 in. lbs. for early models (2003-2005) and 44 in-lbs for late models (2006-up)

Back off the anchor end pin exactly 2 1/2 turns for early models and 3 turns for late models. Hold the pin in place and tighten the locknut.





Technical Bulletin # 1192

Transmission: 5R55N/S/W

Subject: Ratio Errors After Overhaul

Application: Ford, Jaguar, Mercury

Issue Date: August, 2008

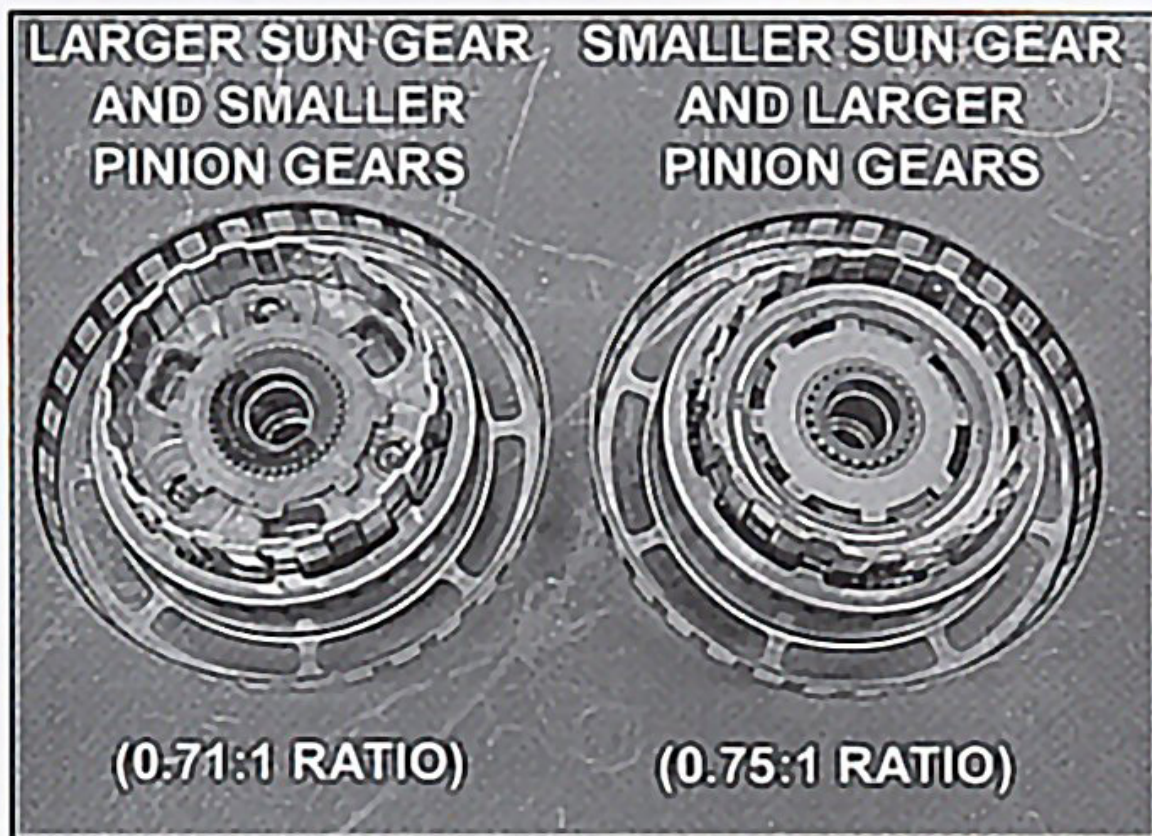
5R55N/S/W

Ratio Errors After Overhaul

There are two ratios for the 5R55N/S/W 0.75:1 and 0.71:1. Overdrive ratio codes may be displayed during the road test. If the Overdrive planetary needs to be replaced, make sure you replace it with the correct parts.

Overdrive (25 T Pinion) (Used w/ 24 T Sun Gear)..... 99-01

Overdrive (28 T Pinion) (Used w/ 38 T Sun Gear)..... 02-Up



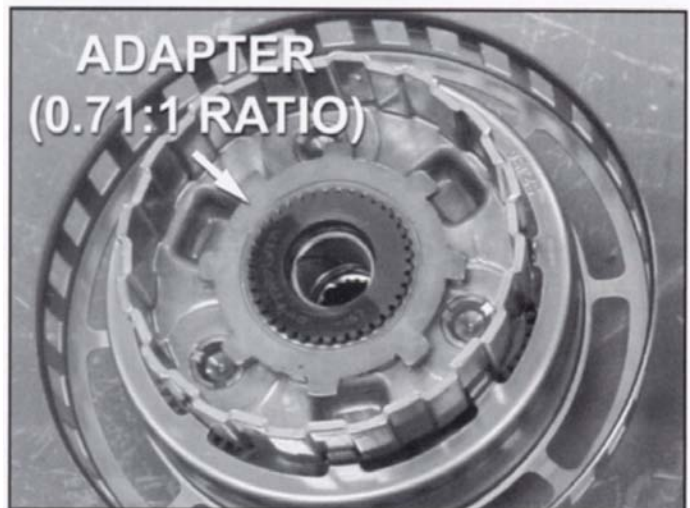
Technical Bulletin # 1192



Install the coast clutch to Overdrive carrier adapter with the stamped part number facing away from the Overdrive planetary carrier assembly.

If the sun gear or adapter requires replacement, make sure the replacement part is correct:

- 5th Gear ratio of 0.75 to 1 (24 tooth sun gear “smaller diameter”)
- 5th gear ratio of 0.71 to 1 (38 tooth sun gear “larger diameter”)





Technical Bulletin # 1191

Transmission: 5L40E/5L50E

Subject: *Operating Characteristics*

Application: GM

Issue Date: August, 2008

5L40E/50E - Operating Characteristics

2003 - 2005 Cadillac CTS, SRX, XLR, and STS

Operating Characteristics of the 5L40E/5L50E Automatic Transmission

The Hydra-Matic 5L40E/50E automatic transmissions have some unique operating characteristics with which customers may not be familiar with. They have been designed to provide more of a manual transmission feel than other Hydra-Matic automatic transmissions.

Descriptions of the unique operating characteristics are as follows:

Normal Mode Operation (CTX, SRX, STS, XLR)

During normal mode operation, drivers may notice increased powertrain braking after releasing the accelerator pedal. The vehicle will not coast freely when the accelerator pedal is released but will start to gradually slow down as if the brakes were lightly applied. This feels very similar to releasing the accelerator pedal on a vehicle equipped with a manual transmission.

Sport Mode Operation (CTS)

Typically, Sport mode delays upshifts. The Sport mode simulates the performance driving of a manual transmission. Under certain conditions, the vehicle will maintain specific gears longer than a traditional automatic would. When driving in Normal mode in 5th gear, depressing the Sport button causes an immediate 5-4 downshift, which will be maintained for ten seconds. In any other gear, no downshift takes place when Sport is engaged. In Sport mode, the vehicle has firmer shifting and increased performance, and the transmission may remain in a gear longer than it would in Normal mode.

Driver Shift Control "DSC" (SRX, STS, XLR)

The driver manually overrides the automatic gear selection. Various mechanization options for input device and degree of override are allowed.

Performance Algorithm Shifting "PAS" (XLR, 2004 SRX)

PAS overrides normal automatic gear selection during closed throttle high lateral acceleration maneuver. Low gear is accompanied by near synchronous engine speed control for quick response upon re-opening throttle (enable threshold bias in Sport mode).

Technical Bulletin # 1191

Performance Algorithm Liftfoot “PAL” (CTS, SRX, STS, XLR)

PAL prevents liftfoot upshifts while maintaining engine braking during repeated aggressive cornering.

Winter Mode (CTS)

The vehicle launches in 2nd or 3rd gear instead of 1st, to avoid wheel spin in snow or ice, if selected by the driver.

Shift Stabilization (CTS, SRX, STS, XLR)

Shift stabilization is used to minimize shift business, or hunting between ranges. Based on several inputs and a map of engine torque at various RPM and throttle position, the TCM determines before making an upshift whether the engine will be able to maintain vehicle speed in the next higher range. If it calculates that it cannot maintain speed, it will prevent the upshift from occurring.

Downgrade Detection Brake Assist (CTS, SRX, STS, XLR)

Shift to lower gear when braking on downgrade based on fuzzy logic rules calculated from a thermal brake model, terrain detection, desired acceleration, vehicle speed, and mass detection.

Adapts (CTS, SRX, STS, XLR)

Adapts continually compares actual shift times to desired shift times. The transmission controls make hydraulic adjustments to assure the actual shift time approach the ideal shift time the next time the shift is made for similar operating conditions of vehicle RPM, engine load, and road load conditions. The adaptive shift process continues for the life of the vehicle to provide consistent and optimized shifts.

	2003-2005 CTS	2004-2005 SRX	2005 STS	2004-2005 XLR
Transmission	5L40E	5L40E/50E	5L40E/50E	5L40E
Normal Mode Operation	X	X	X	X
Normal Mode Operation	X			
Normal Mode Operation		X	X	X
Normal Mode Operation		X		
Normal Mode Operation	X	X	X	X
Normal Mode Operation	X			
Normal Mode Operation	X	X	X	X
Adapts	X	X	X	X



Technical Bulletin # 1190

Transmission: 62TE, 42RLE, Mercedes

Subject: ATF Oil Level Checking Procedure

Application: 722.6

Issue Date: August, 2008

62TE, 42RLE, Mercedes

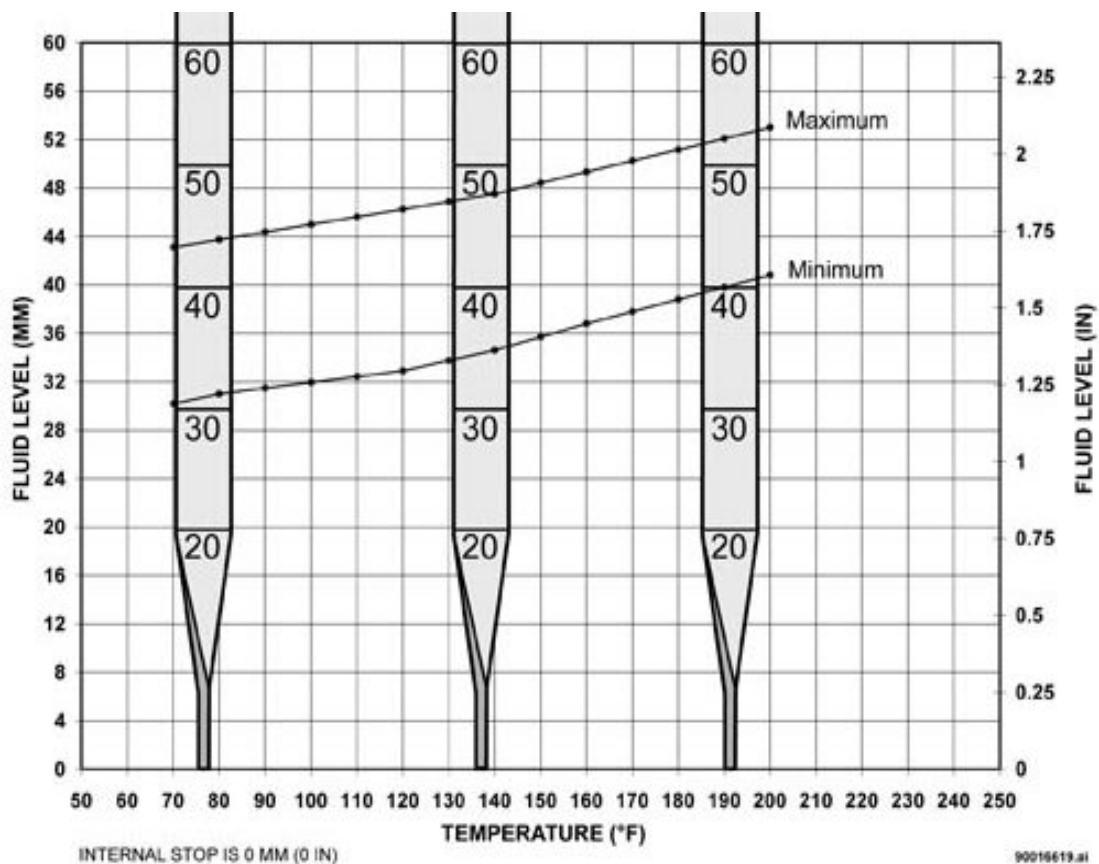
ATF Level Check

When checking the fluid level on Chrysler or Mercedes, it is important to be on level ground and using a scan tool, verify transmission temperature. Use the chart below to properly fill the unit with Miller tool 9336 (universal dipstick).

Markings on the gauge bar are every 10mm. A tool may be fabricated from an old speedo cable or an old dipstick. The key is having the stick marked every 10mm starting from the bottom up. Note: The stick **MUST** bottom out on the transmission pan.



Technical Bulletin # 1190





Technical Bulletin # 1189

Transmission: 5 and 6 speed Standard

Subject: Transmission Removal

Application: Mitsubishi Car

Issue Date: August, 2008

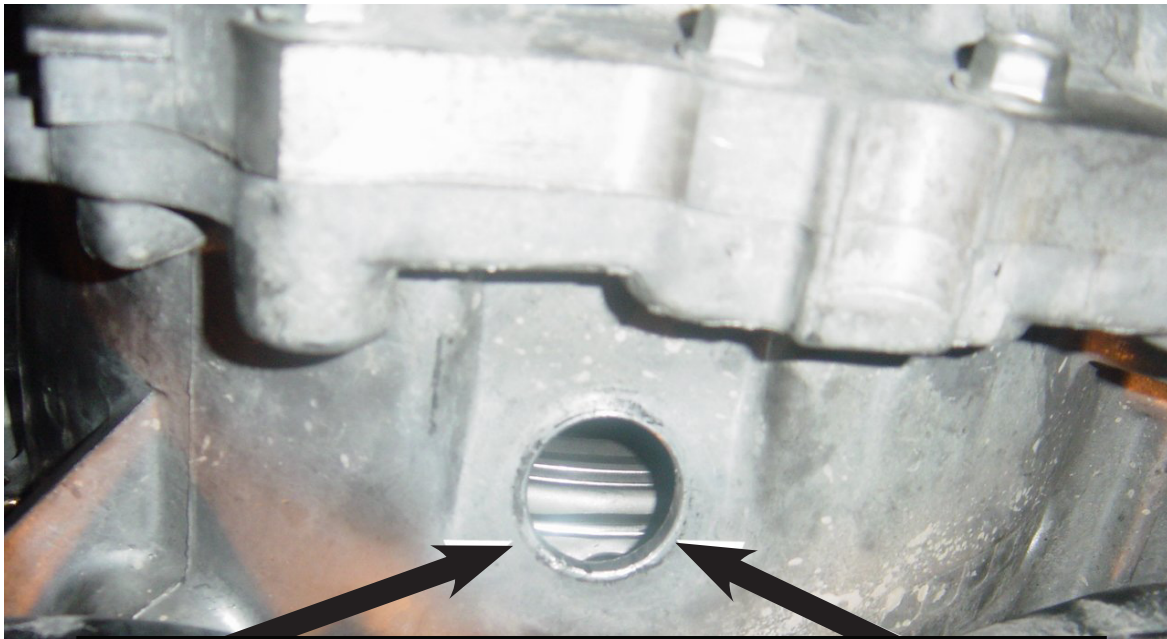
5 and 6 Speed Standard Transmission Transmission Removal

To make the removal process easier, remove the throw out bearing with the transmission bolted to the engine.

The slave cylinder must be removed at this time.

Hold the Throw-Out (T.O.) bearing towards the pressure plate.

1. Through the access hole (fig1) the screw driver must be between the washer and the T.O. bearing.

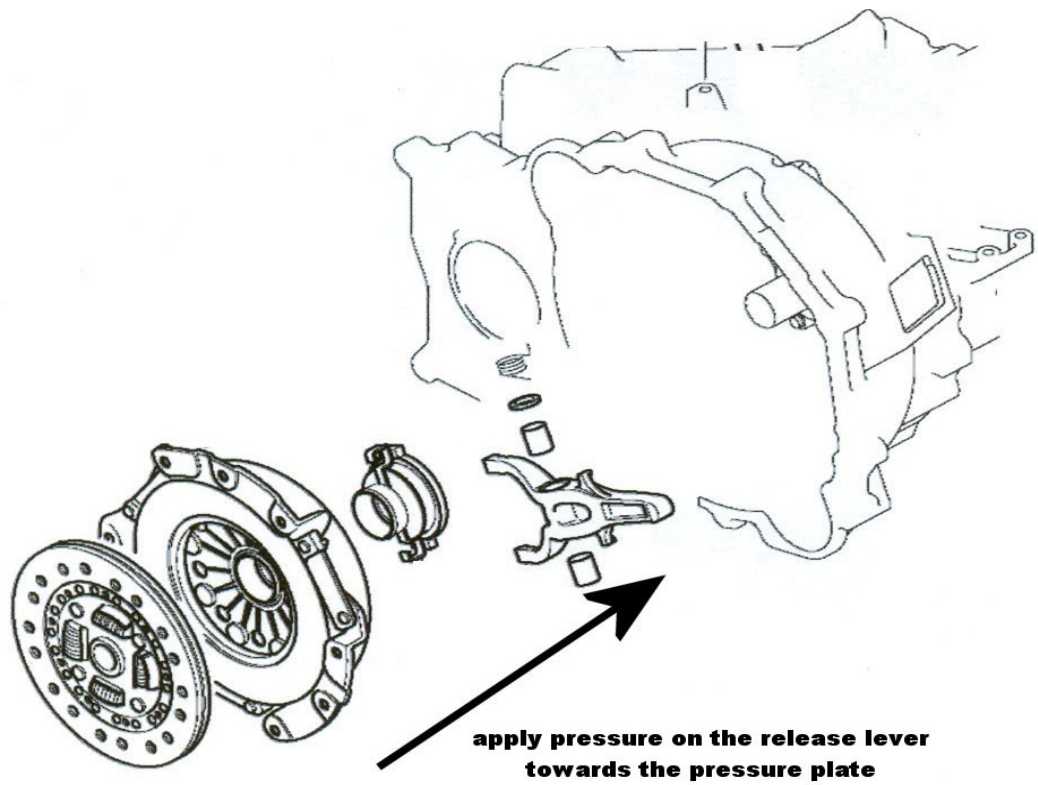


Screwdriver Access Location

“Special thanks to Ed Fredette at Crown Valley Transmissions in Laguna Niguel, CA”

Technical Bulletin # 1189

2. While holding pressure on the release lever (fig2)



3. Gently twist the screwdriver and release the T.O. bearing from the pressure plate (fig3).





Technical Bulletin # 1194

Transmission: RE5R05A

Subject: Air Testing the Transmission

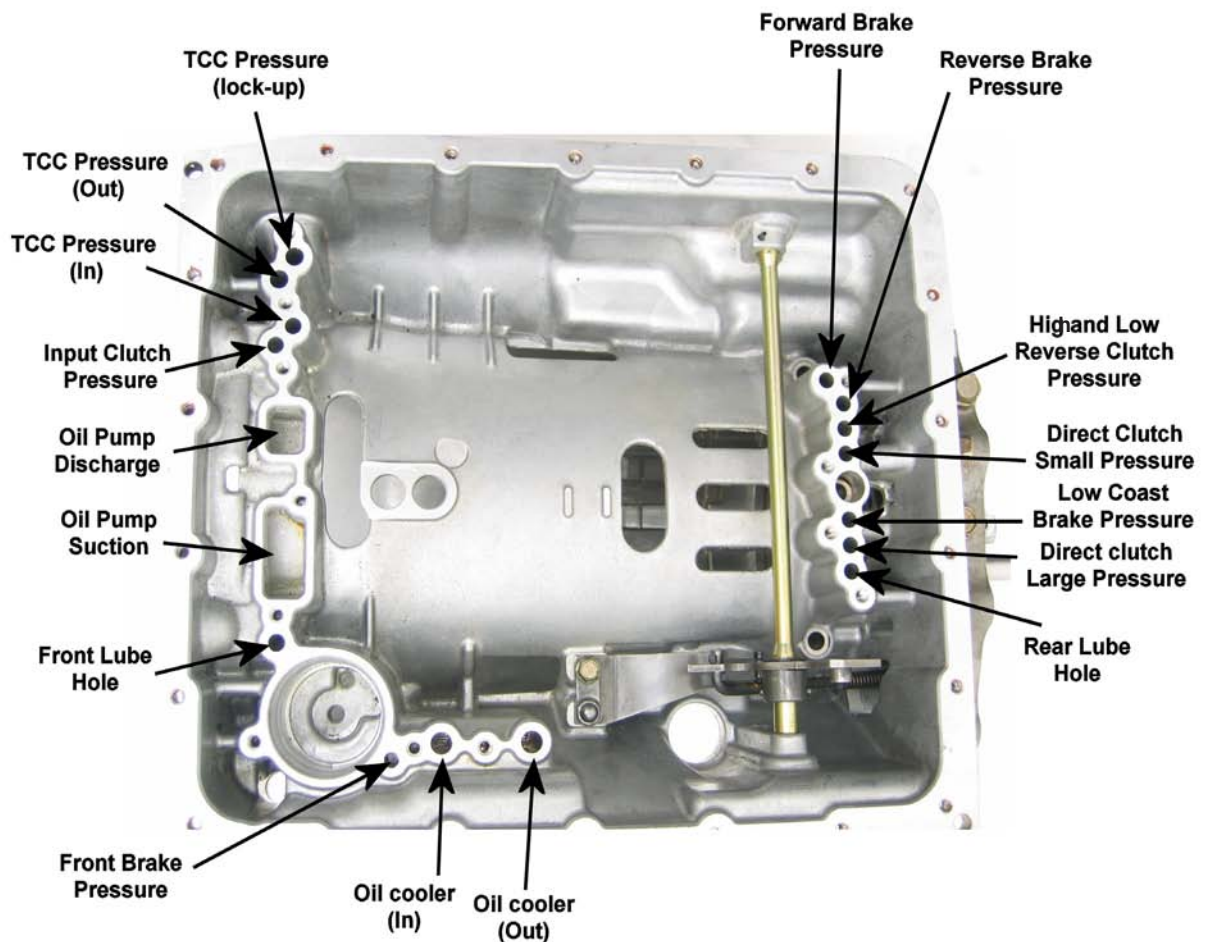
Application: Nissan, Infinity

Issue Date: August, 2008

RE5R05A

Air Testing the Transmission

When air testing the transmission, use the following illustration to verify your clutches are sealed. This test needs to be done using (30psi) regulated air psi.





Technical Bulletin # 1195

Transmission: 4F50N

Subject: *Relief Valves and Checkballs Identification and Location*

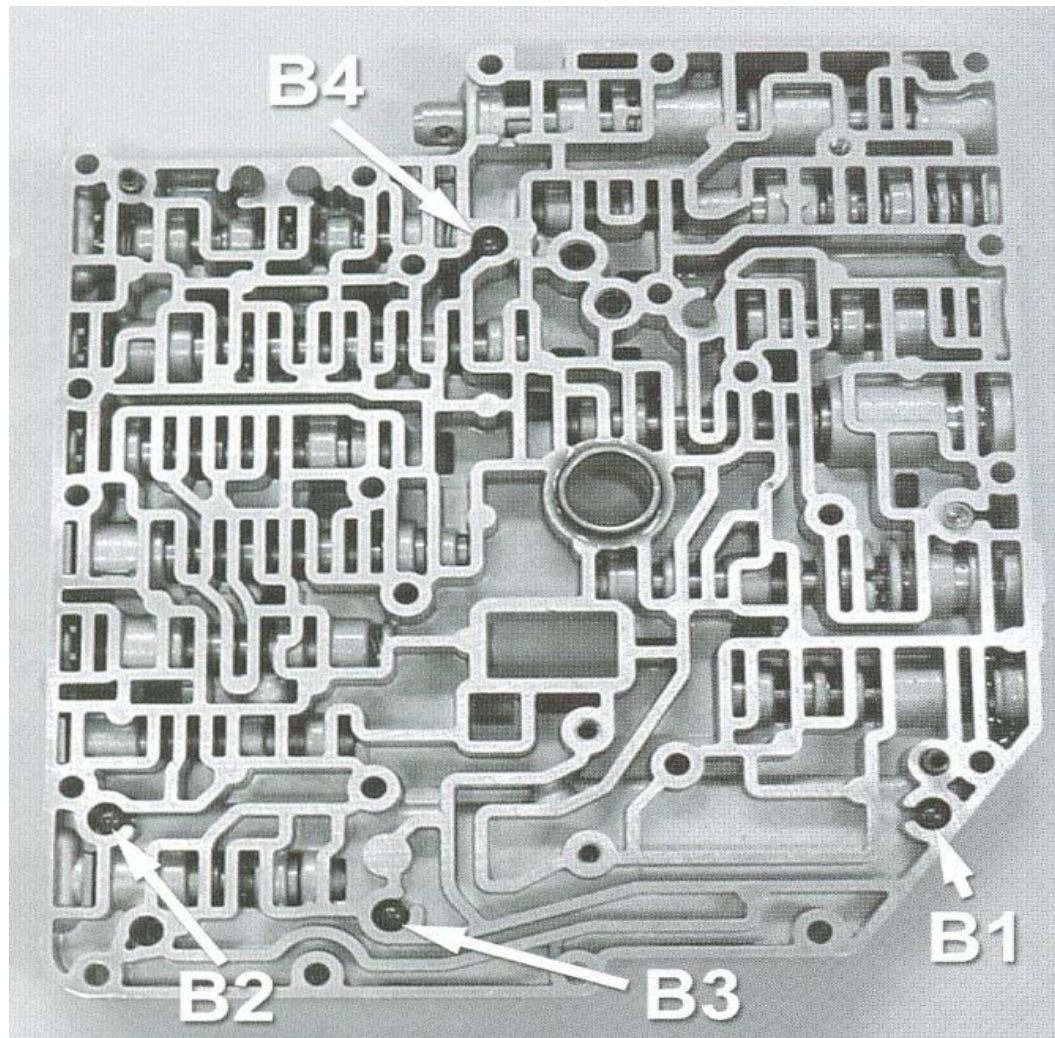
Application: Ford, Mercury

Issue Date: September, 2008

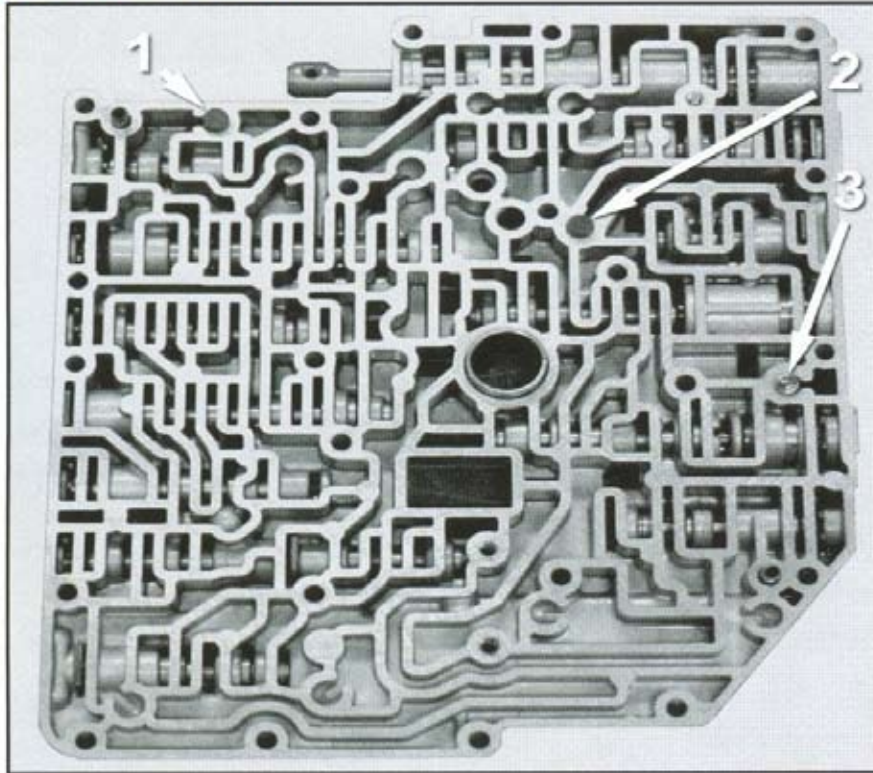
4F50N

Relief Valve and Checkball Identification and Location

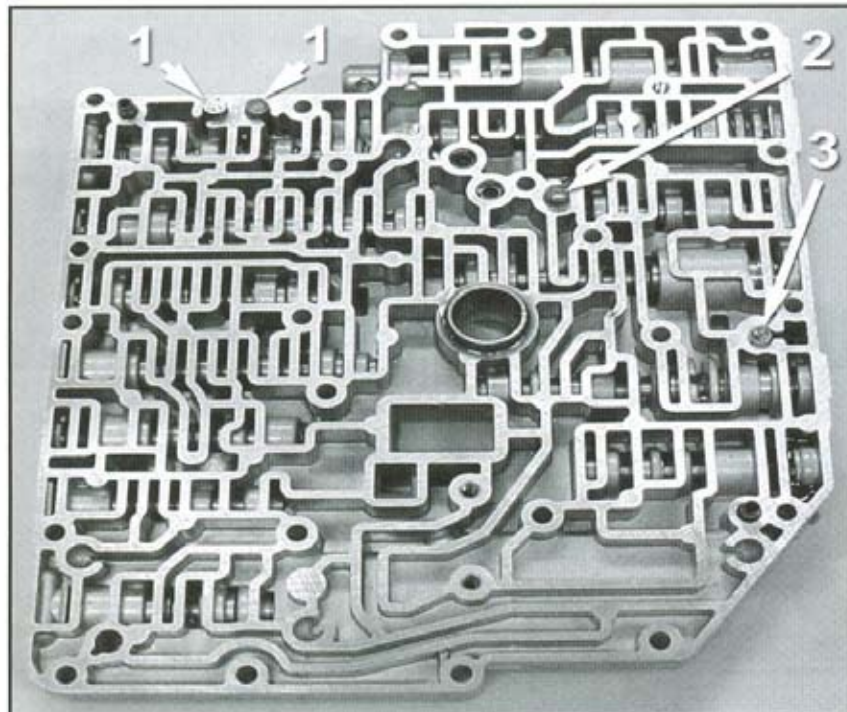
Use the following illustrations to verify the proper identification and locations of the relief valves and checkballs



**RELIEF VALVES AND SPRINGS
(2000-2003)**



**RELIEF VALVES AND SPRINGS
(2004)**





Technical Bulletin # 1196

Transmission: 4F50N

Subject: Case Connector, Internal Wiring

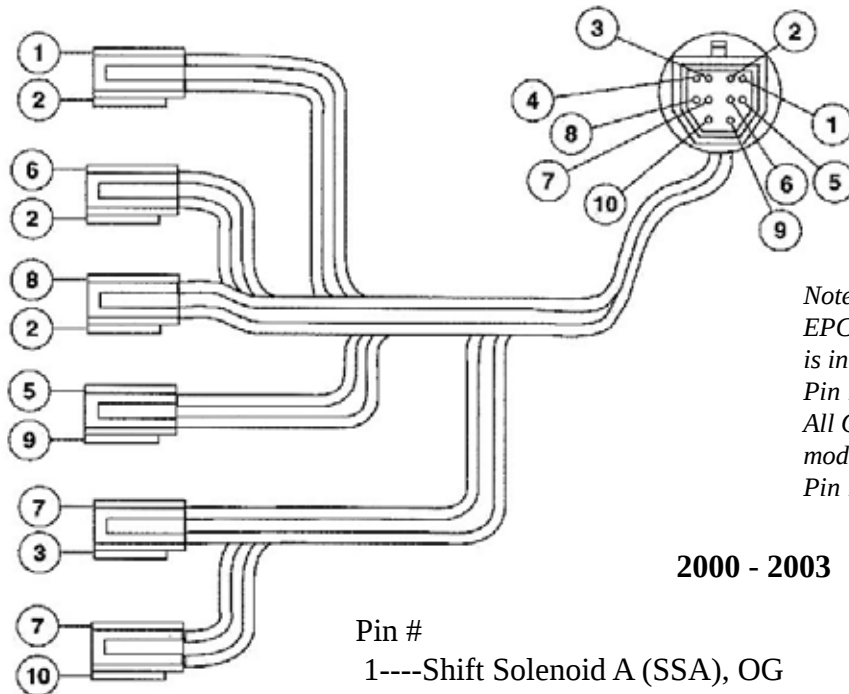
Application: Ford

Issue Date: September, 2008

4F50N

Case Connector ID and Internal Wiring 2000-03 and 2004-on

It is important to note that the power pins for the TCC solenoid is in two different locations depending on the year of the vehicle being worked on. Improper hookup can cause issues like TCC cycling on when in drive.



Note: On 2004-on vehicles, the EPC Pin at the EEC-V module is in two different locations: Pin 7-Taurus/Sable and Pin 71-All Other Models! On earlier models (2000-2003 all) it is at Pin 71 at the EEC-V module.

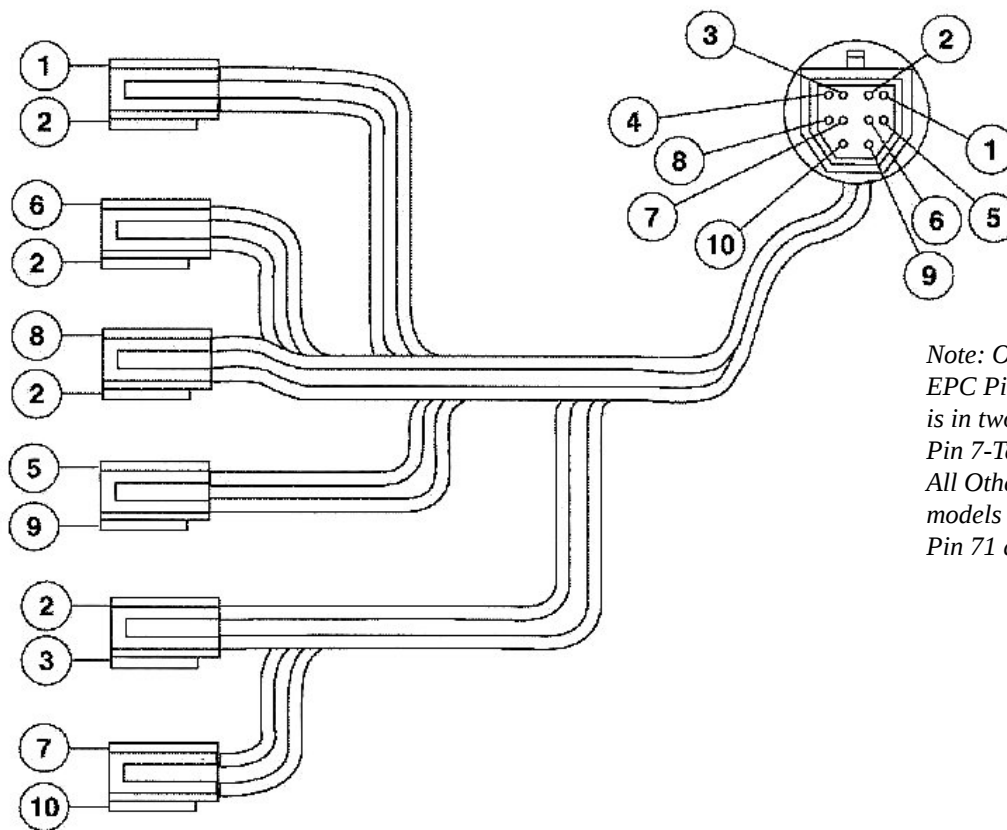
2000 - 2003

Pin #

- 1----Shift Solenoid A (SSA), OG
- 2----Shift Solenoid Vehicle Power, RD
- 3----Torque Converter Clutch (TCC) Solenoid, BN
- 4----Not Used
- 5----Transmission Fluid Temperature (TFT) Sensor, BK
- 6----Shift Solenoid B (SSB), PK
- 7----**Electronic Pressure Control (EPC) Solenoid and Torque Converter Clutch (TCC) Solenoid Vehicle Power, GN**
- 8----Shift Solenoid C (SSC), YE
- 9----Transmission Fluid Temperature (TFT) Signal Return, WH
- 10---Electronic Pressure Control (EPC) Solenoid, BU

The EPC and the TCC share a Power Source Pin# 7

Technical Bulletin # 1196



Note: On 2004-on vehicles, the EPC Pin at the EEC-V module is in two different locations: Pin 7-Taurus/Sable and Pin 71- All Other Models! On earlier models (2000-2003 all) it is at Pin 71 at the EEC-V module.

2004 - On

Pin

- 1----Shift Solenoid A (SSA), OG
- 2----Shift Solenoid and Torque Converter Clutch (TCC) Solenoid Vehicle Power, RD
- 3----Torque Converter Clutch (TCC) Solenoid, BN
- 4----Not Used
- 5----Transmission Fluid Temperature (TFT) Sensor, BK
- 6----Shift Solenoid B (SSB), PK
- 7----**Electronic Pressure Control (EPC) Solenoid Vehicle Power, RD**
- 8----Shift Solenoid C (SSC), YE
- 9----Transmission Fluid Temperature (TFT) Signal Return, WH
- 10----Electronic Pressure Control (EPC) Solenoid, BU

The EPC and the TCC share a Power Source Pin# 7



Technical Bulletin # 1197

Transmission: 42RLE, 41TE, 42RLE, 45RFE, 545RFE

Subject: P1776-Low/Reverse switch valve latched in L/R position.

Application: Chrysler

Issue Date: September, 2008

42LE, 42LE, 41TE, 45RFE, 545RFE

P1776-Solenoid Switch Valve Latched in L/R Position

The Low/Reverse solenoid has two functions in these transmissions.

1. Apply the Low/Reverse clutches
2. Control lock up

The Solenoid switch valve directs the Low/Reverse and TCC solenoid oil to work the torque converter clutch valves, when the transmission is not in first or reverse gears. (Figure 1 and 2) If the computer sees the Low/Reverse pressure switch closed during any period when TCC is commanded, P1776 will set.

In most cases, the fix for this code is to address the common wear that develops in the Solenoid switch valve by reaming and replacing the valve with an aftermarket design or replacing the valve body with new or rebuilt.

In other cases, the code can be caused by:

1. Shift Cable, Causing a "T" transition input to the TCM adjustment
2. An intermittent short to ground on Low/Reverse pressure switch circuit.
3. Defective solenoid pack
4. PCM programming

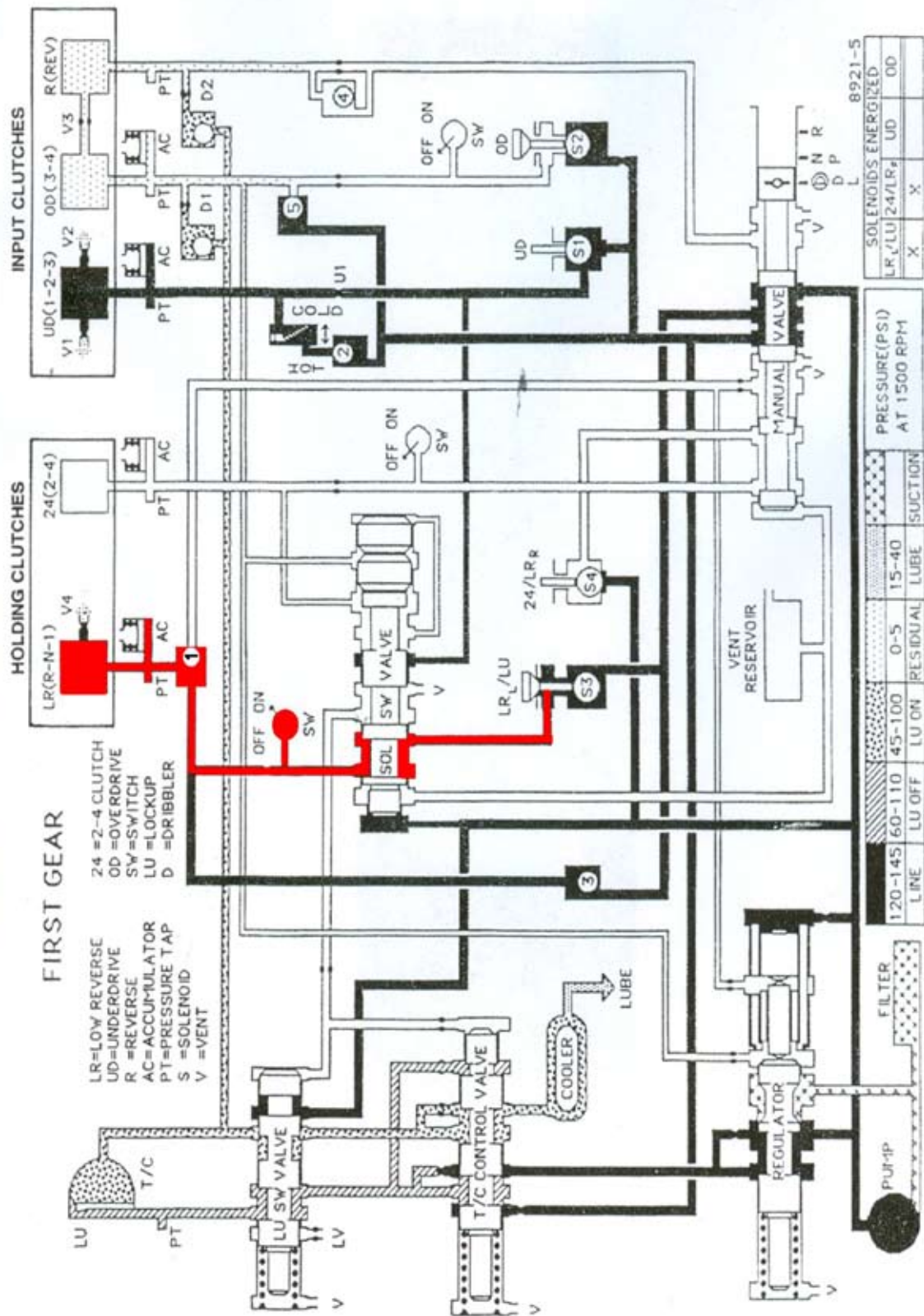
If working with:

2005	Wrangler
2005-2006	Durango
2005-2006	Liberty/Cherokee
2005-2006	Dakota
2006	Truck

Factory bulletin 21-005-07 calls for a reflash when experiencing this code.

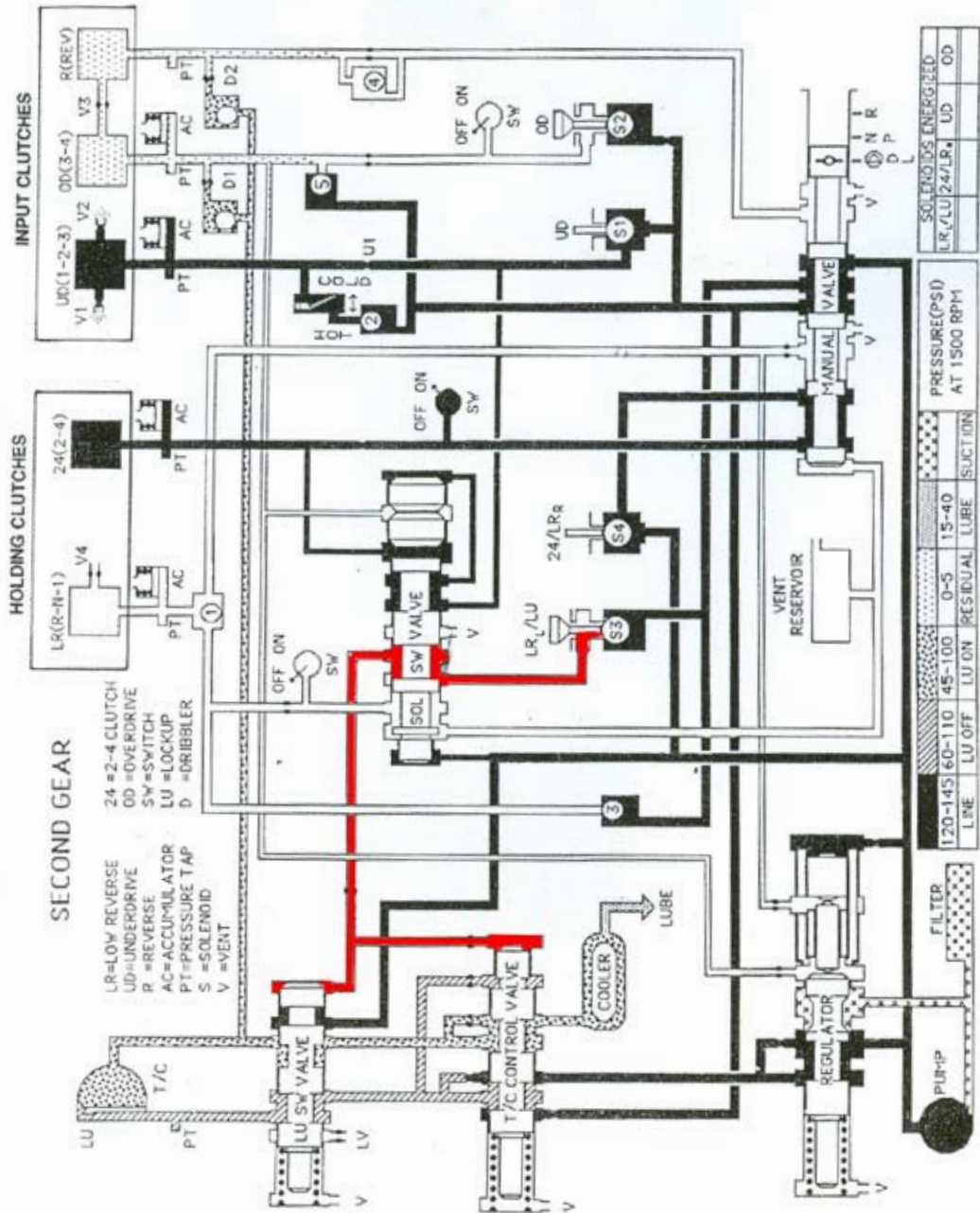
A604 Ultradrive Electronic

First Gear



A604 Ultradrive Electronic

Second Gear



Technical Bulletin # 1197

If you're working with 42LE transaxle with this code, look at the four digit manufacturing code on the solenoid pack. (Figure 3) The first three digits are the day of the year and the fourth digit is the year. (3001 would be the 300th day of 2001) If the code falls between 3001 and 0603, replace the solenoid pack before the valve body to repair code. Even if the year vehicle does not fall within these dates, the solenoid pack could have been replaced with the effected years previously.

Date code can be located in one of the two circled locations.





Technical Bulletin # 1198

Transmission: 09G 6-Speed

Subject: Neutrals into 4th

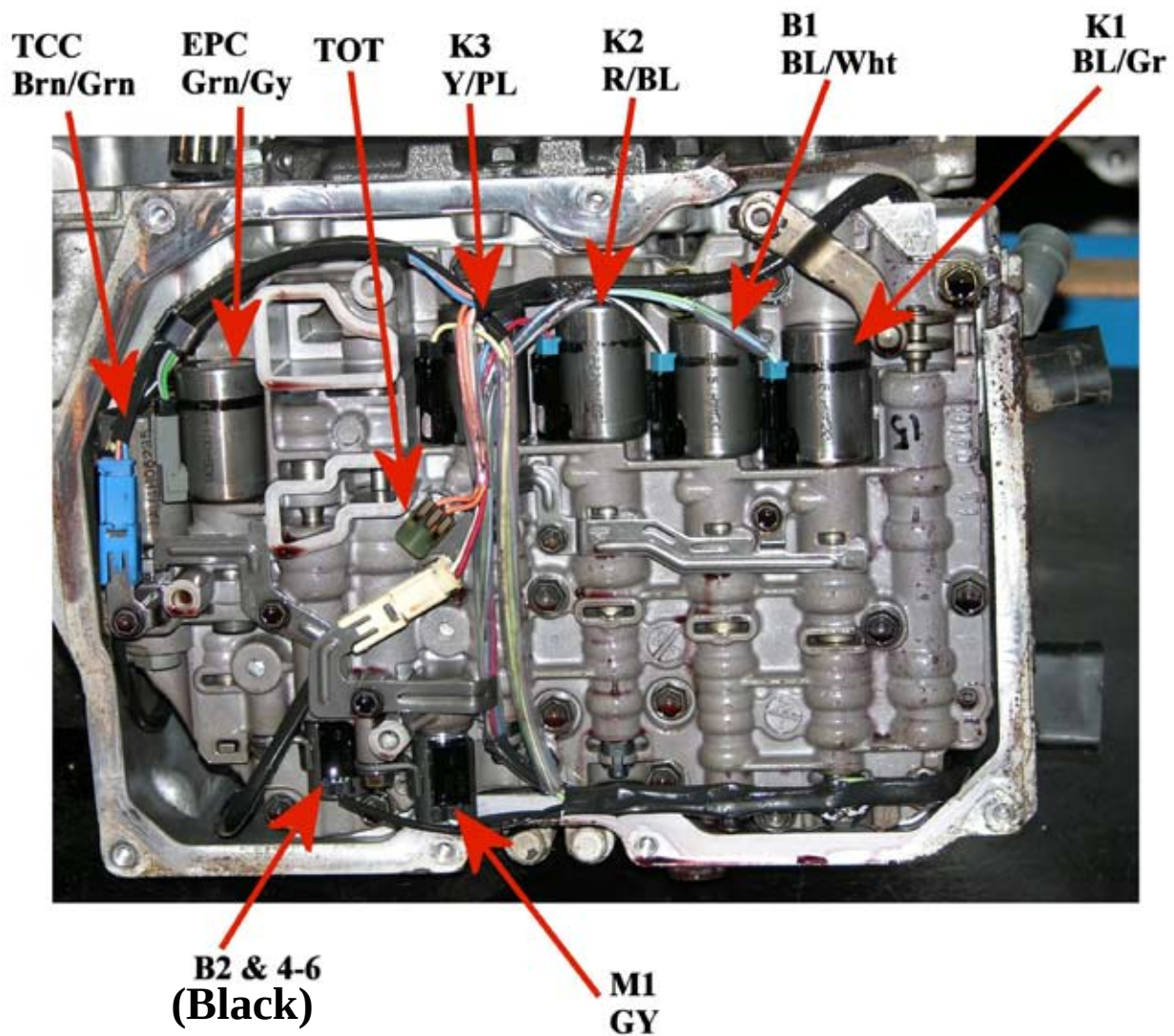
Application: VW

Issue Date: September, 2008

09G 6-Speed

Neutrals into 4th

Some 2004 and later VW models with the 09G 6-speed transmission may Neutral during a 3-4 upshift. This problem may occur after rebuild or solenoid service. The reason for this is that the M1 (N88) and B2/4-6 (N89) solenoid wires are reversed. The Light Gray wire goes to the M1 and the BLACK wire goes to the B2/4-6 solenoid. Always mark the solenoids harness or take a picture to insure the harnesses go to the correct solenoid connectors.





Technical Bulletin # 1199

Transmission: 09G 6-Speed

Subject: Sprag Rotation

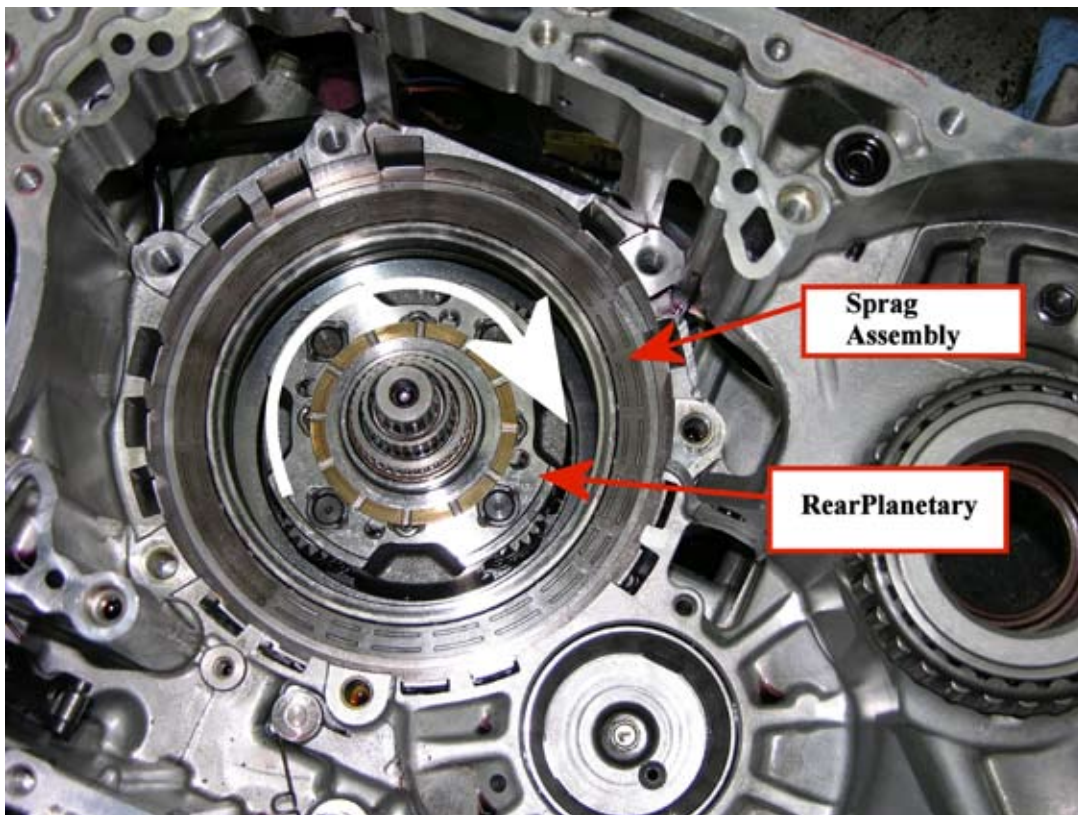
Application: VW

Issue Date: September, 2008

09G 6-Speed

Sprag Rotation

Use the following illustration to correctly install the sprag used on the 09G 6-speed transmissions. After installation, the planetary assembly should rotate clockwise.





Technical Bulletin # 1200

Transmission: AWF-21B

Subject: *Valvebody Identification and Rebuilding Reference*

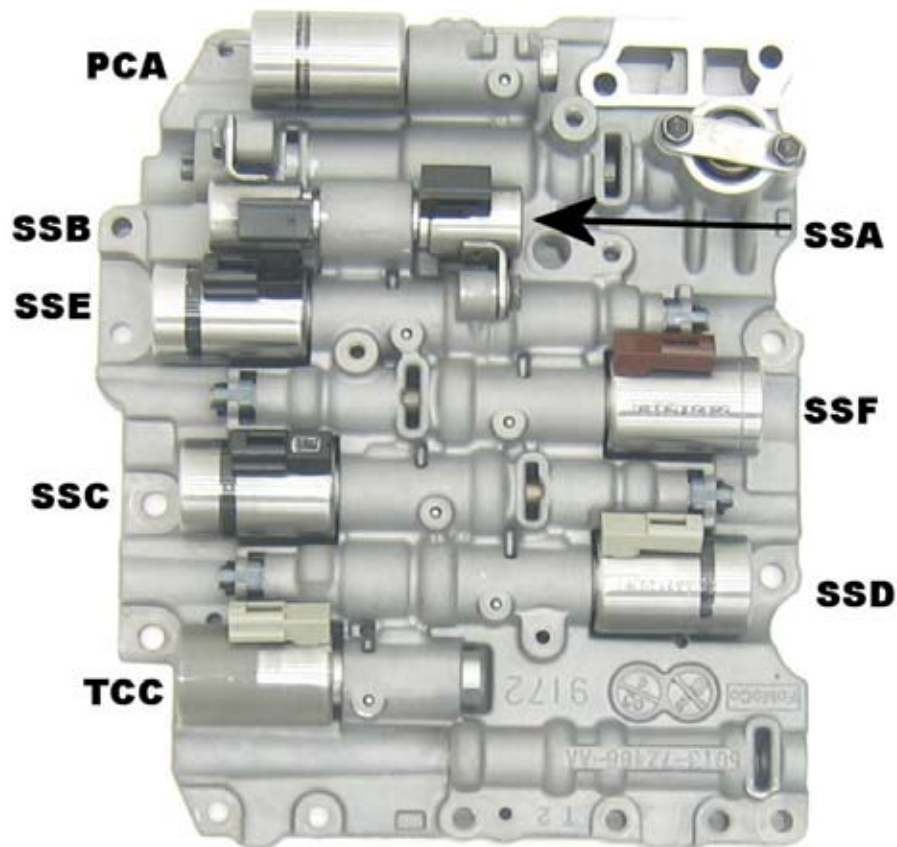
Application: Ford

Issue Date: September, 2008

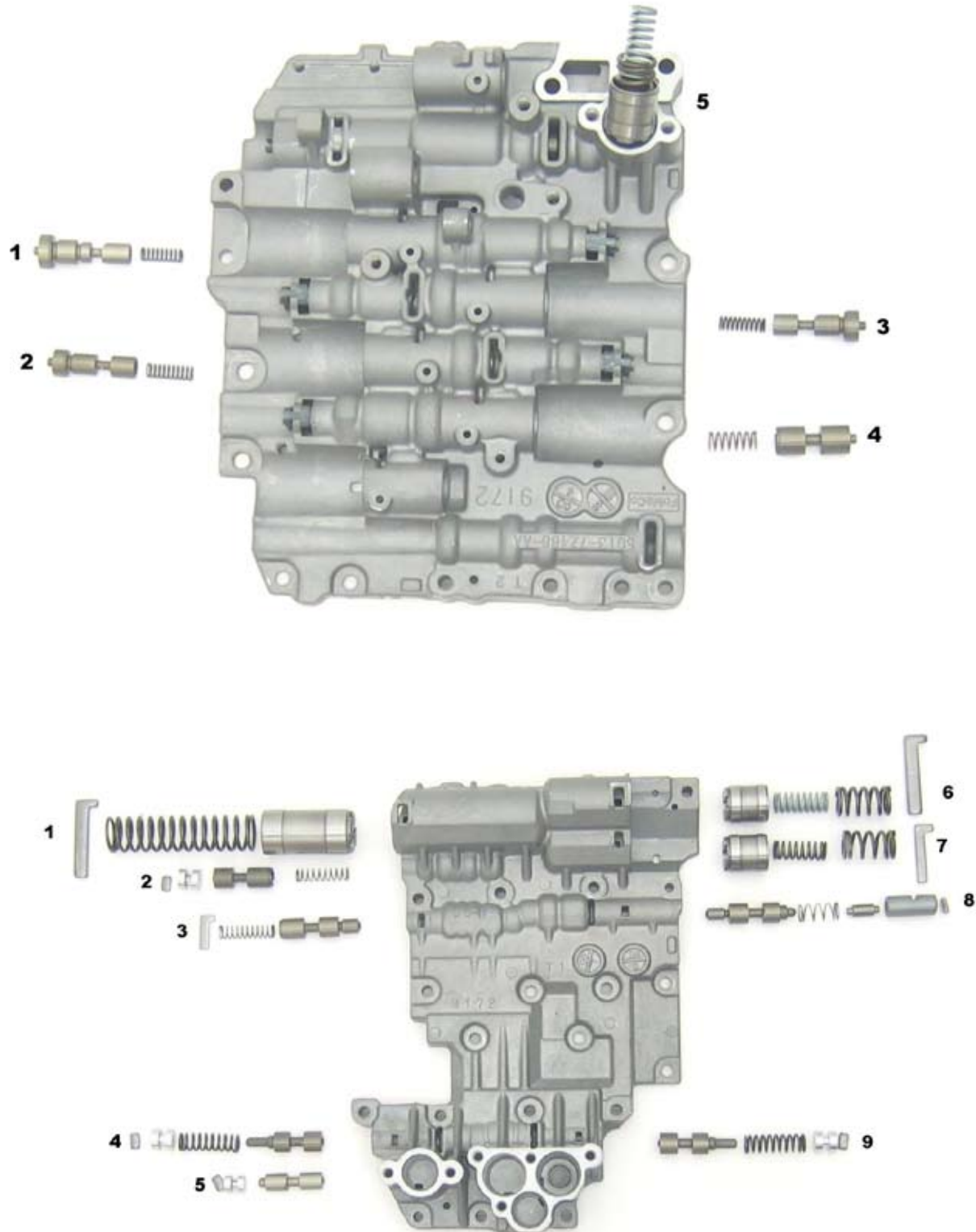
AWF-21B

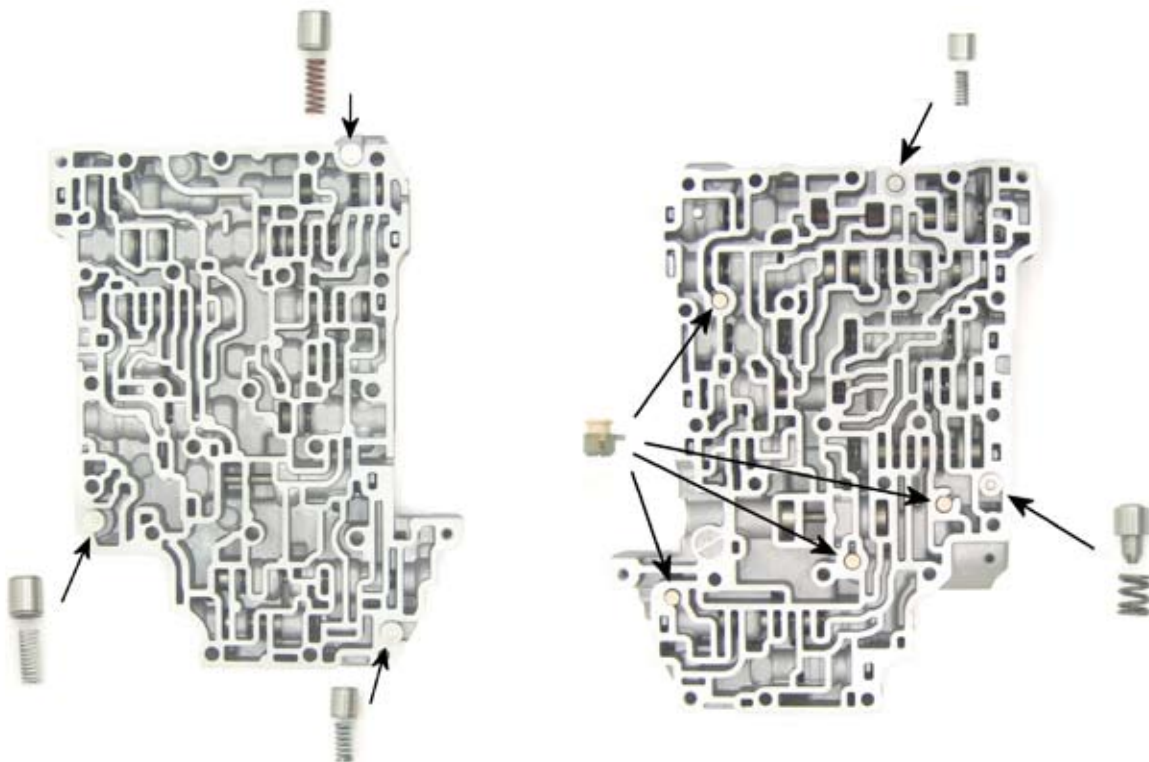
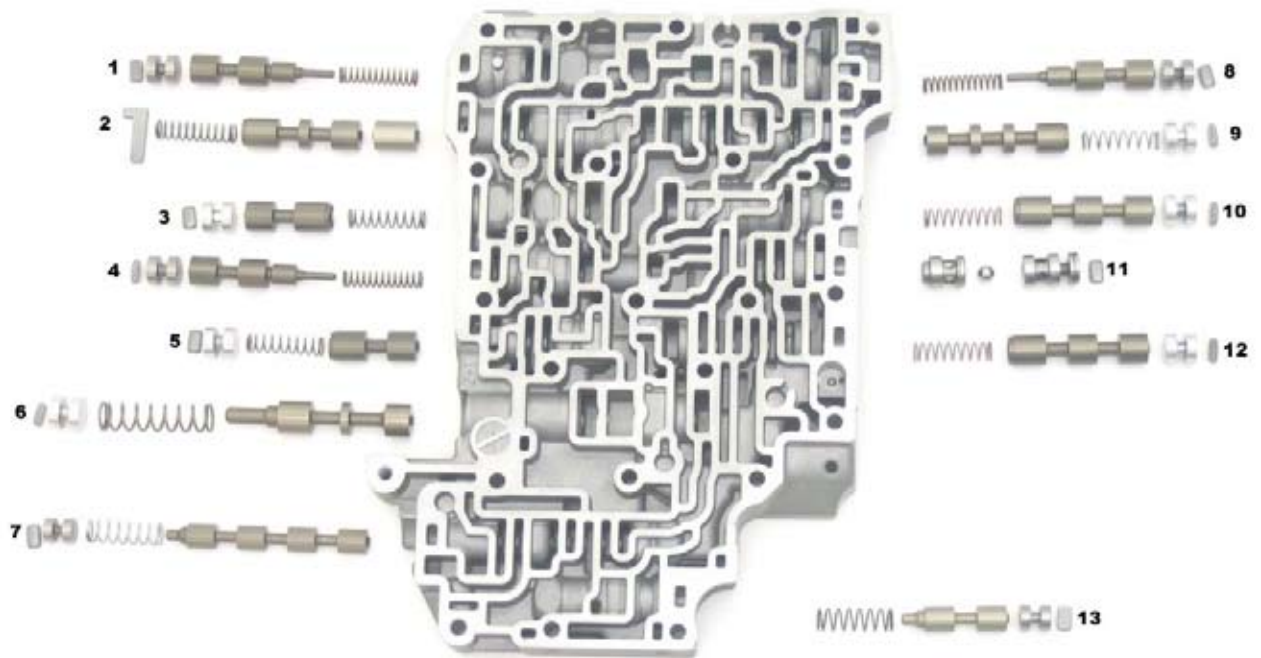
Valvebody Identification and Rebuilding Reference

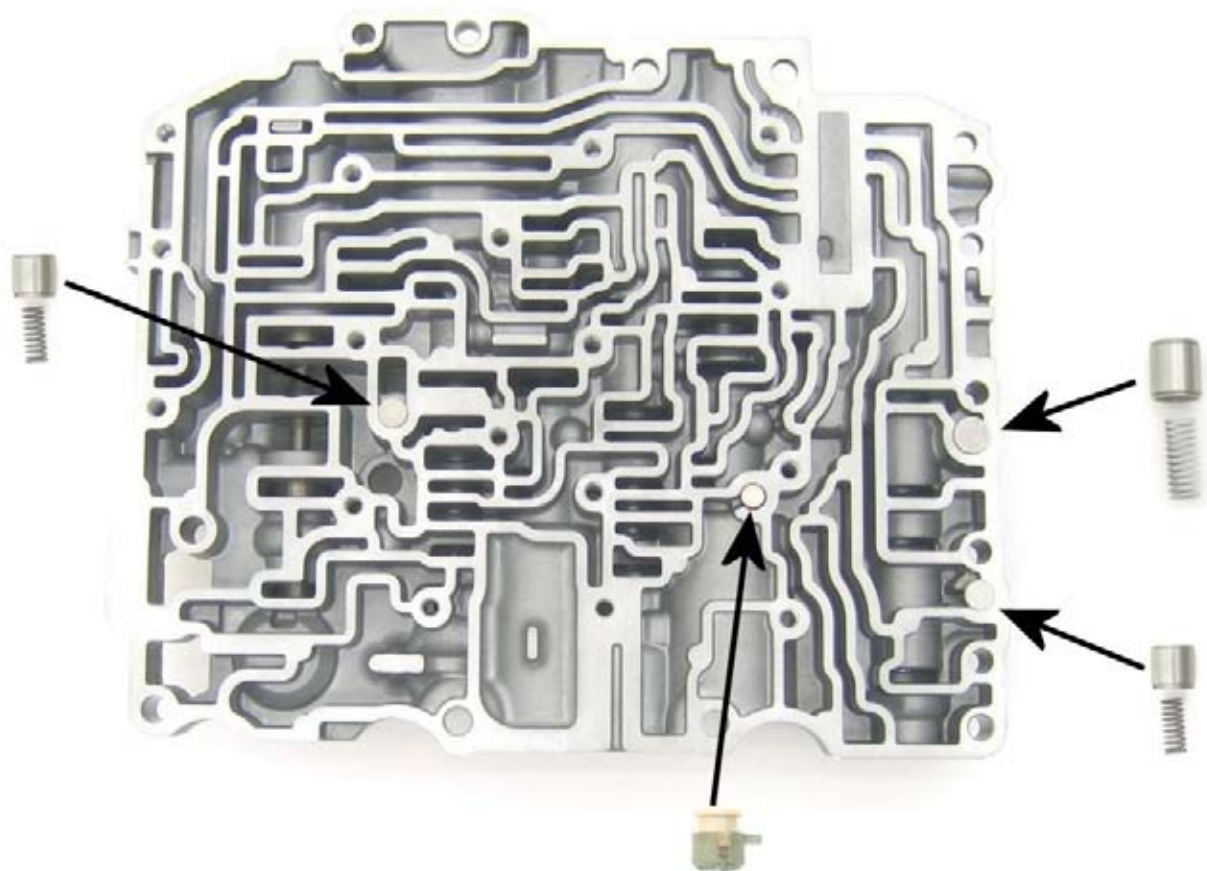
The following pages are for reference. The valves are not named as there is no factory information on these units.



ATRA > Page 2 of 4









Technical Bulletin # 1201

Transmission: 4F27E

Subject: 2-3 Flare and Neutrals in 4th Gear

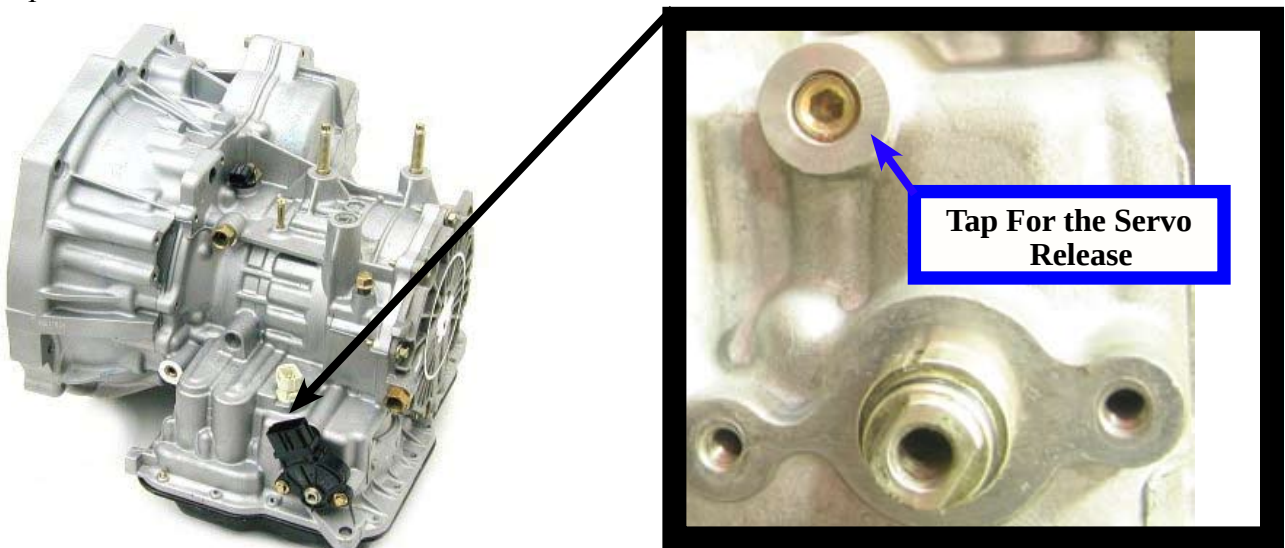
Application: Ford

Issue Date: September, 2008

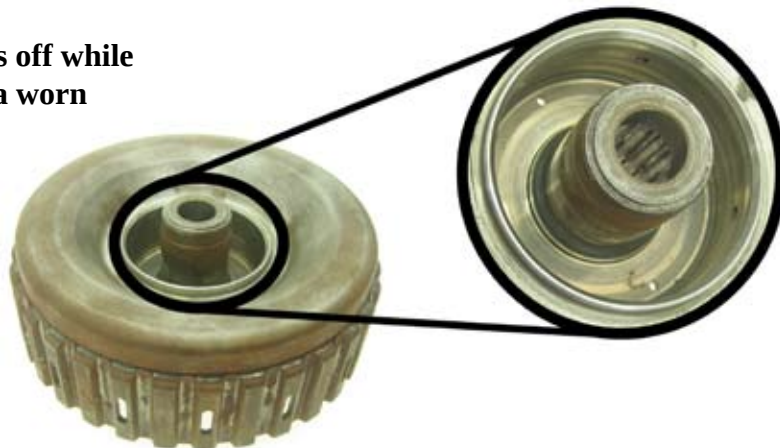
4F27E

2-3 Flare and Neutrals in 4th Gear

A 2-3 flare or falling out of gear in 4th gear can be caused by a worn direct drum. Always inspect the drum carefully for ring wear. Also, use high quality sealing rings. To diagnose this problem connect a pressure gauge to the servo release pressure tap behind the MLPS. In 3rd and 4th gear the pressure should be between 60-110psi depending on throttle angle. If the pressure drops off while in 4th gear suspect a worn drum.



If the pressure drops off while in 4th gear, suspect a worn drum.



Thanks to Paul @ Sarasota Arcadia Transmission for the Direct drum



Technical Bulletin # 1202

Transmission: 4r70/75E

Subject: No Up-Shift Command After Overhaul

Application: 2004 and Up Ford

Issue Date: September, 2008

4R70/75E

No Up-shift Command After Overhaul

Starting in 2004, Ford integrated a different style Output Speed Sensor (OSS) on the 4R70E/75E transmissions. The connectors will not interchange because of their shapes, but the exciter built into the rear ring gear that signals the OSS has changed dramatically.

The old style 4R70W ring gear has six holes that signal the OSS as the 2004 and later models extended the parking pawl lugs and used the lugs as an exciter for the late sensor.

If an early style ring gear is used in place of the old style ring gear, the OSS will register 75% slower resulting in a late or no upshift condition. Swapping a late ring gear into an early application will result in an OSS signal that is 400% faster and the transmission will experience a stacked shift condition.

Use the following illustrations to reference the correct sensor and gear application.

4R70W



4R70E/75E



4R70W



6 RETRATOR HOLES

4R70E/75E



24 RETRATOR LUGS



Technical Bulletin # 1156A

Transmission: AODE/4R70W/4R70/75E

Subject: Case Connector Pin ID

Application: Ford

Issue Date: February, 2008

AODE/4R70W/4R70/75E

Connector View and Pin Locations ID

The AODE/4R70W and 4R70/75E Transmission case connectors have gone through two changes over the past 14 years. Use the following illustrations to properly identify the pin locations and connector views during your diagnostics.

1998-2007

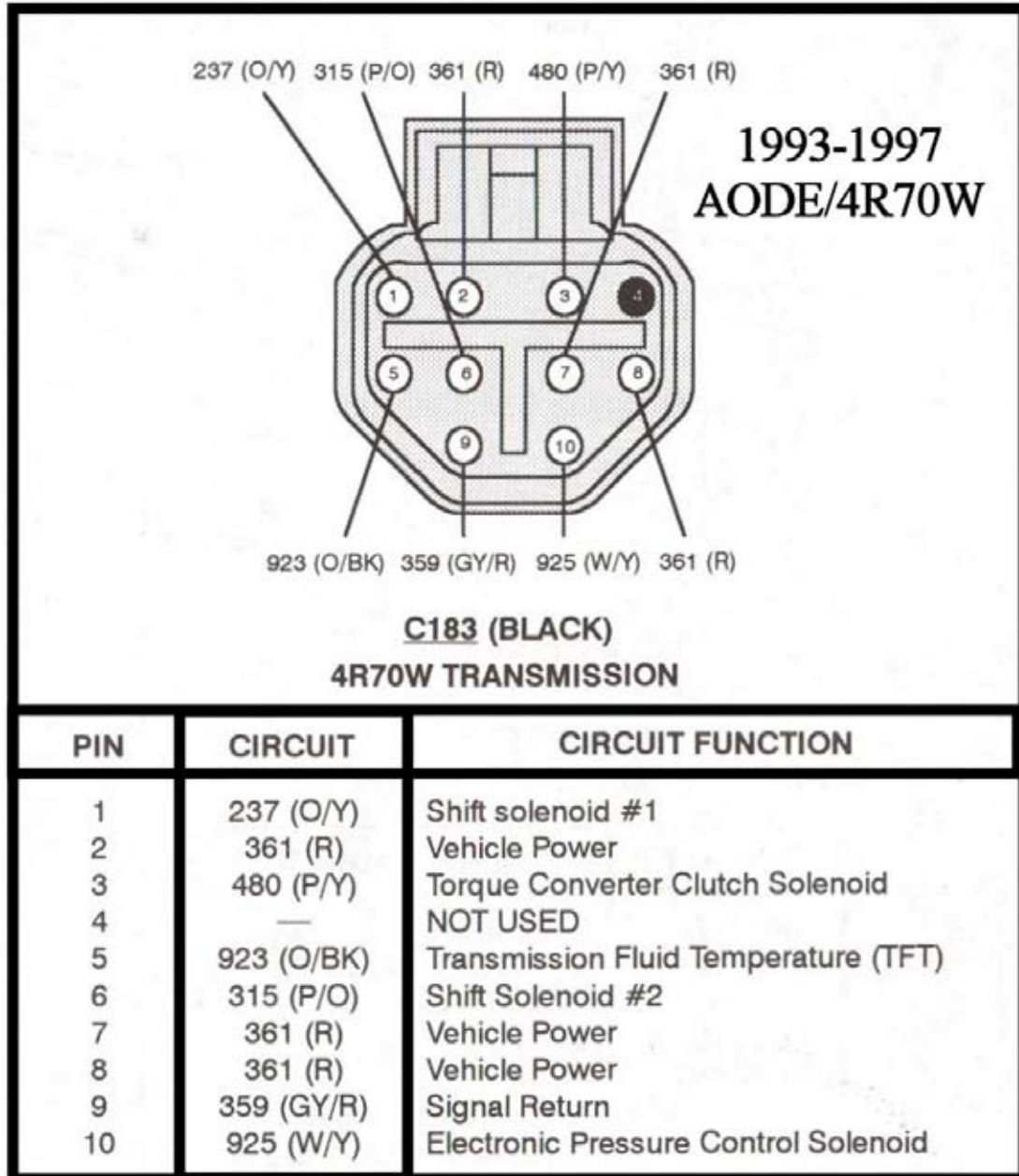
4R70W



C183

4R70W TRANSMISSION

PIN	CIRCUIT	CIRCUIT FUNCTION
1	—	NOT USED
2	359 (GY/RD)	Signal Return
3	480 (VT/YE)	Torque Converter Clutch Solenoid
4	1138 (VT/WH)	Vehicle Power
5	923 (OG/BK)	Transmission Fluid Temperature (TFT)
6	925 (WH/YE)	Electronic Pressure Control Solenoid
7	237 (OG/YE)	Shift Solenoid A (SSA)
8	315 (VT/OG)	Shift Solenoid B (SSB)
9	—	NOT USED
10	—	NOT USED





Technical Bulletin # 1203

Transmission: *Honda*

Subject: *Feed Tube Damage*

Application: *Honda, Acura*

Issue Date: *October, 2008*

5spd, MDKA, BDKA, BWEA, MJBA, BJFA, MJFA, PVLA, PVGA

Disassembly Procedures, Feed Tube Damage

Remove CPC C feed tubes prior to case separation to prevent feed tube damage. These tubes fit into the valve body inside the case. If the pipes are damaged they are available from the Acura dealer.

Pipe measurement

8 X 53

8 X 25.2

8 X 36

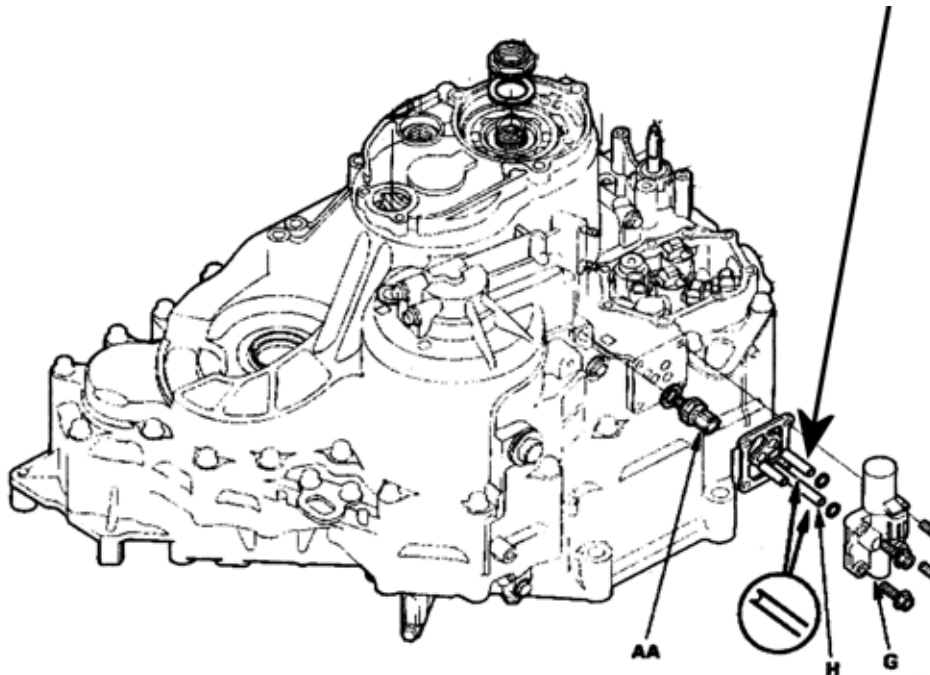
Part number

22750-RDK-010

22761-P7Z-000

22770-P7Z-000

Always remove these 3 pipes before splitting the case halves



“A Special Thank You to H&A Transmissions for the information provided.”



Technical Bulletin # 1204

Transmission: 4R70W

Subject: Part Interchangeability

Application: Ford, Lincoln, Mercury

Issue Date: October, 2008

4R70W

Parts Interchangeability

1994-2003 Ford/Mercury Rear Wheel Drive Cars and Trucks

Should repairs become necessary on a 4R70W involving the replacement of the forward sun gear, sun shell, or the forward sun gear to sun shell bearing, these parts must be replaced in combination if using new or the late 4R75E parts. Mismatching any of these parts will produce end play problems and/or bearing failure.

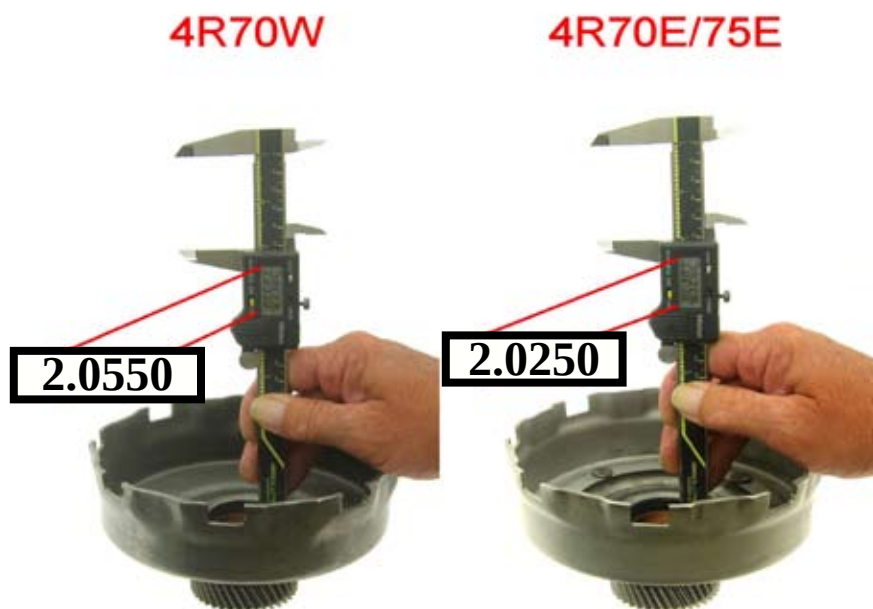
Ford sells a service package with all three pieces under part # 4L3Z-7D234-AA

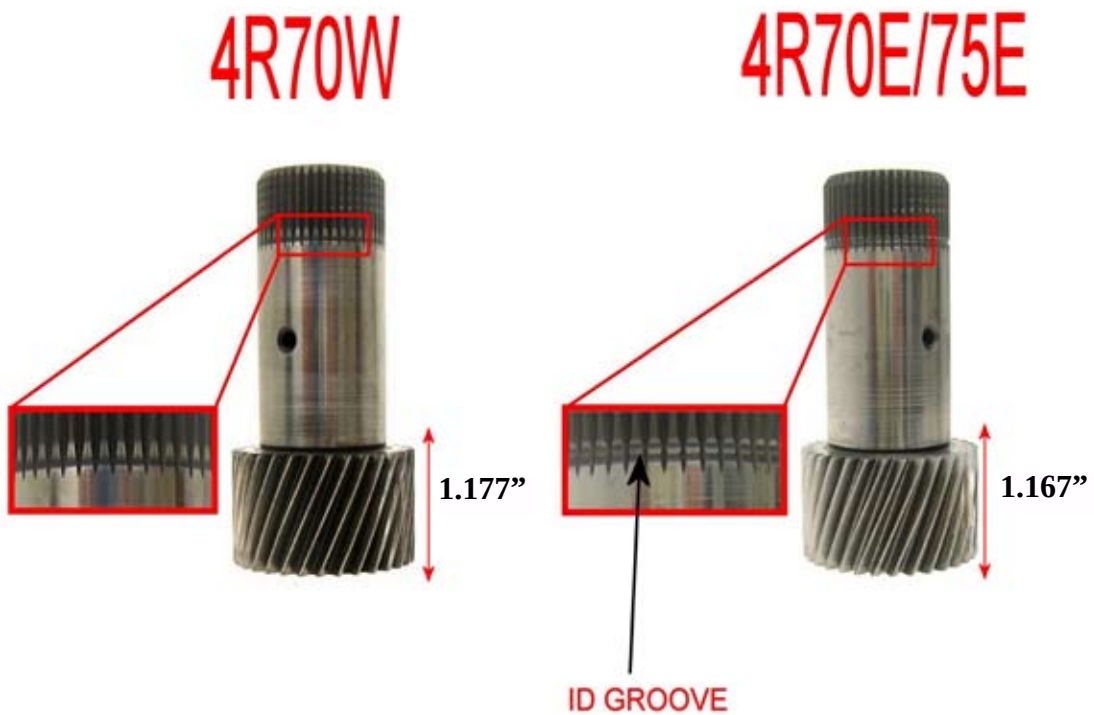
NOTE: These parts are not interchangeable!!

The kit includes:

1. Two piece #5 bearing assembly
2. Forward sun gear
3. Sun shell

Use the figures below to identify the correct parts.







Technical Bulletin # 1205

Transmission: RE4F04A, RE4F03B

Subject: Harsh 1-2 Shift, DTC P0745

Application: 2003-2005 Nissan

Issue Date: October, 2008

RE4F04A, RE4F03B

Harsh 1-2 Shift, DTC P0745

Some 2003-2005 Nissan vehicles with the RE4F04A or RE4F03B transmissions, may have a DTC code P0745 stored in the TCM memory.

This usually causes high pressure and may have a harsh engagement and or harsh shifts. If either concern is present, remove the transmission oil pan. Inspect the line pressure control solenoid for loose wiring, faulty solenoid ground or replace the line pressure control solenoid (Nissan universal part no. 31940-41X01).

NOTE: The Nissan solenoid is a universal type and the terminals may have to be modified for your application. The aftermarket parts suppliers may have a line pressure solenoid for your exact application.

Inspect for damage in these locations





Technical Bulletin # 1206

Transmission: *Honda 2 and 3 Shaft*

Subject: *Transmission is Stuck in the Park Position*

Application: *Honda*

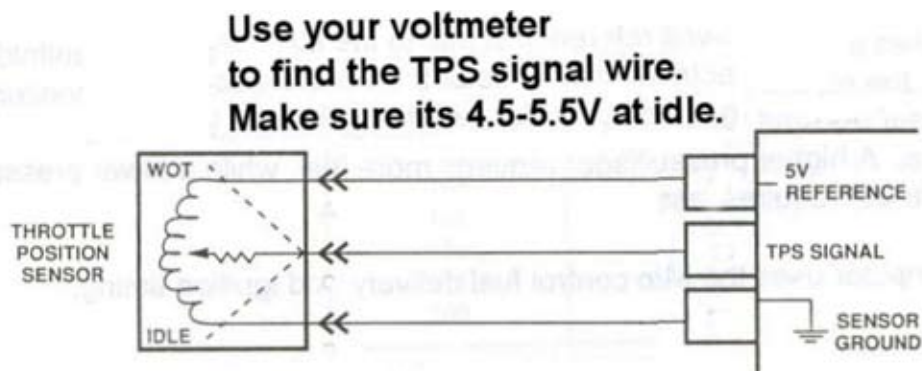
Issue Date: *October, 2008*

Honda 2 and 3 Shaft

Transmission is Stuck in the Park Position

In some 1989-95 Honda vehicles, there may be a concern of not being able to move the gear selector out of Park. This may be caused by the TPS voltage set too high and keeping the Park interlock system engaged.

Make sure the TPS voltage at idle is .45-5.5V. If not, check the TPS ground, TPS sensor circuit and repair, or replace the TPS.





Technical Bulletin # 1207

Transmission: ZF5HP24

Subject: Low or High Pressure

Application: Audi, BMW, Jaguar

Issue Date: October, 2008

ZF5HP24

Low or High Pressure

Some vehicles equipped with the ZF5HP24 transmission may have a condition of low or high pressure operation. A revised pressure regulator valve is available to correct this.

This valve should also be updated to the new design pressure regulator valve during an overhaul or any valve body repair. The revised pressure regulator valve part is available under Transtar part no. 55976T. This part no. is the same as the original design. The revised valve is the only one that is available.





Technical Bulletin # 1208

Transmission: AF23/33-5, RE5F22A, AW55-50SN

Subject: Soft Shifts, Slipping, Low Line Pressure, No Line Rise

Application: GM, Nissan, Volvo, Saturn

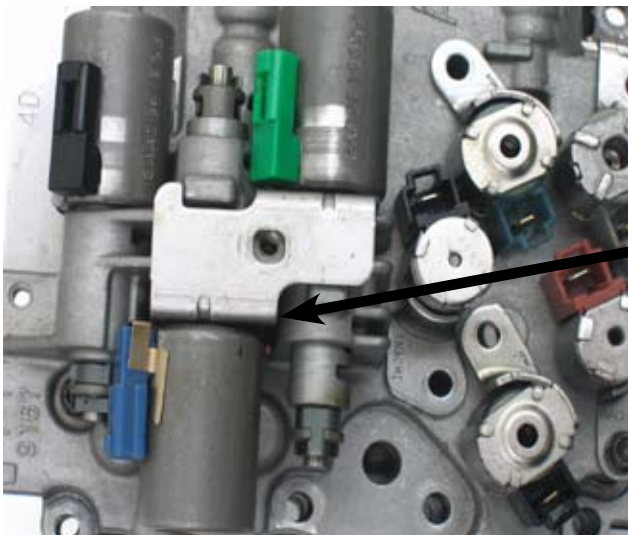
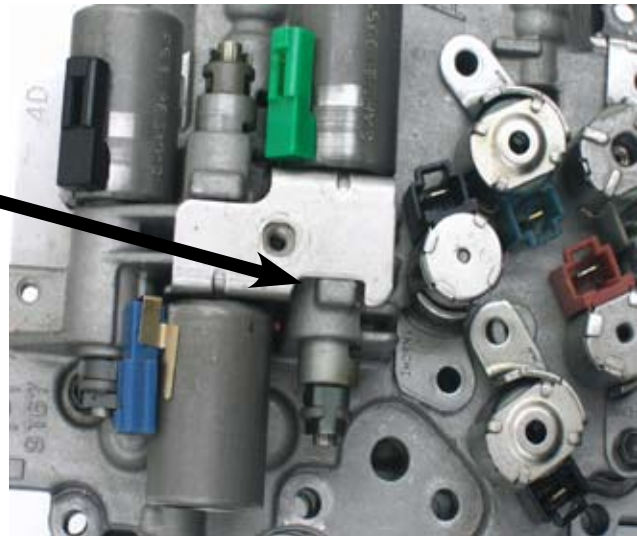
Issue Date:

AF23/33-5, RE5F22A, AW55-50SN

Soft Shifts, Slipping, Low Line Pressure, No Line Rise

When servicing the Valve body of this transmission it is possible to install the solenoid retaining bracket in backwards. Refer to the illustrations for proper solenoid bracket installation.

This is the **CORRECT** way to install the bracket. The tab locks to the forged area on the valve body casting



This is the **IN-CORRECT** way to install the bracket. The bracket pushes the EPC solenoid away from its bore causing it to **LEAK**!



Technical Bulletin # 1209

Transmission: AXODE, AX4S, AX4N, 4F50N

Subject: Neutrals, Binds, Cycling Shifts

Application: Ford, Lincoln, Mercury

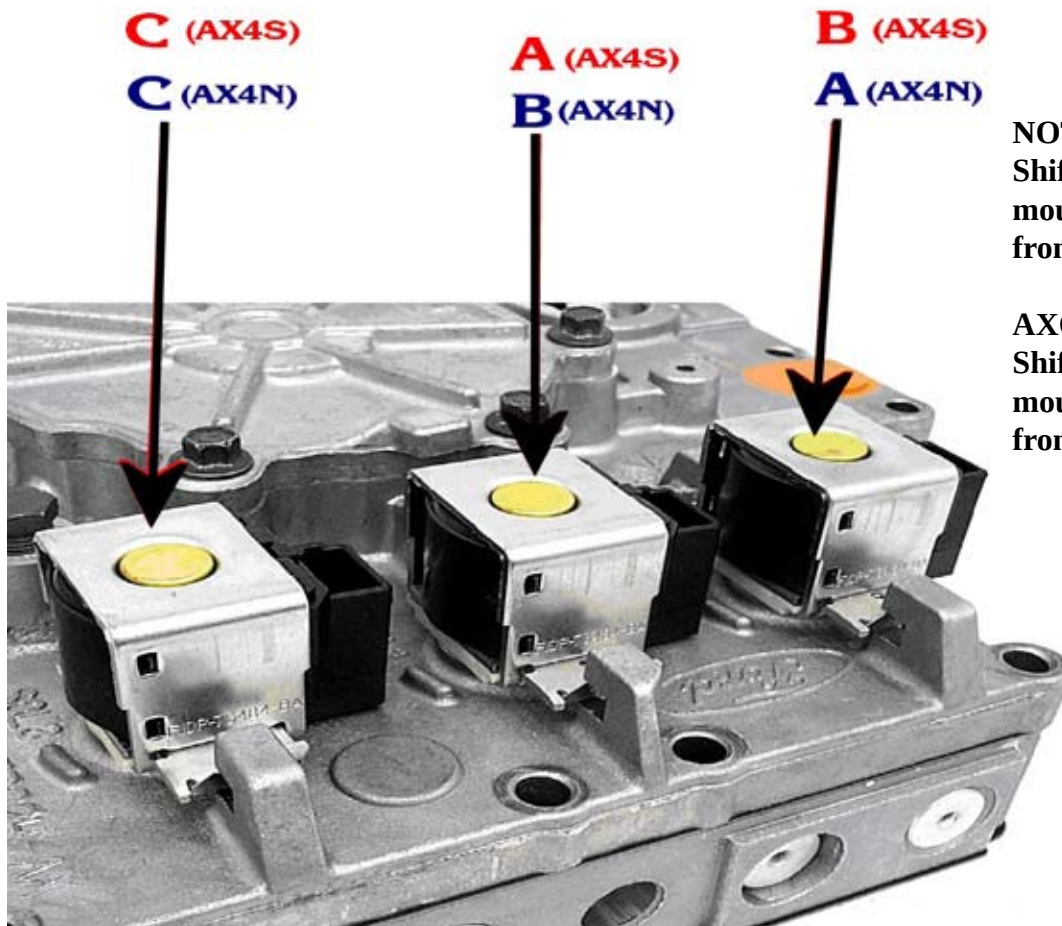
Issue Date: October, 2008

AXODE, AX4S, AX4N, 4F50N

Neutrals, Binds, Cycling Shifts

After overhaul some FWD Ford vehicles with the 4-speed A/T may develop erratic shifts, some of these concerns include, Neutrals during upshifts, binds, and shift cycling. There may be no codes present. If a shifter box is available, see if the transmission still has a shifting concern. If not, suspect inputs signals to the PCM, such as TR, VSS, TPS, MAF or ground problems affecting the PCM commands.

If the shift concern is still present, an incorrect internal harness may be the cause. Please note the following information to ensure the solenoids are connected to the correct harness.



NOTE: AX4N/4F50N
Shift Solenoids are mounted A, B, C from top to bottom

AXODE/AX4S
Shift Solenoids are mounted B, A, C from top to bottom



Technical Bulletin # 1210

Transmission: AF23/33-5, 55-50/51SN

Subject: No Reverse from Park

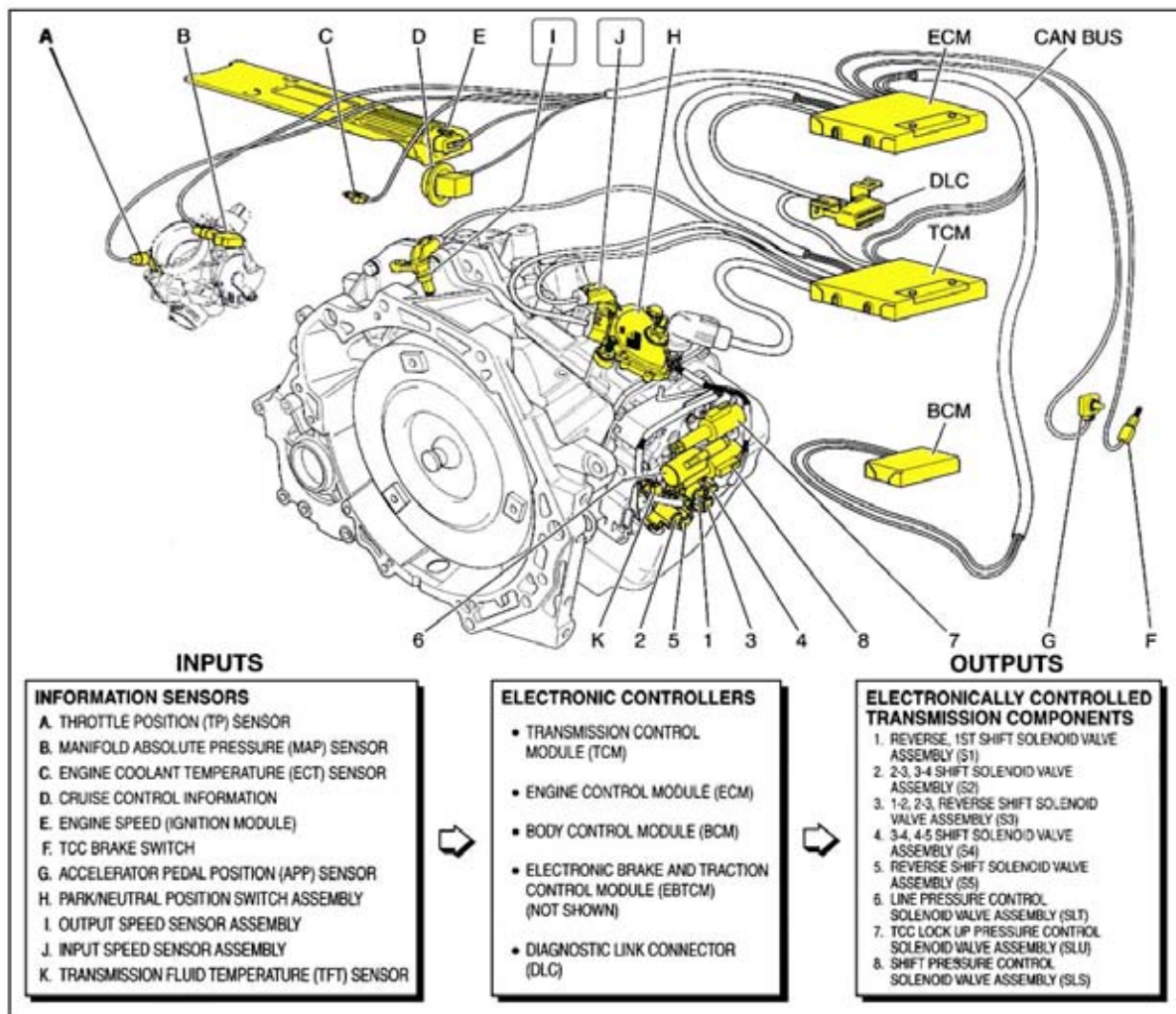
Application: GM and Volvo

Issue Date: October, 2008

AF23/33-5, AW55-50/51SN

No Reverse Engagement from Park (After Repairs)

It is important to note that the speed sensor wires “can be installed incorrectly” after any repair when the transaxle has been removed. If the wires are crossed the complaint will be: Shifting to Reverse from Park there is no engagement (neutral) - shifting from Drive to Reverse, the reverse engagement will be fine. When using a scan tool you will also note that while standing still in park that the output speed sensor will be producing a signal. The wire harness plug ends are identical.





Technical Bulletin # 1210

Transmission: A246E

Subject: Internal Wiring Harness Installation

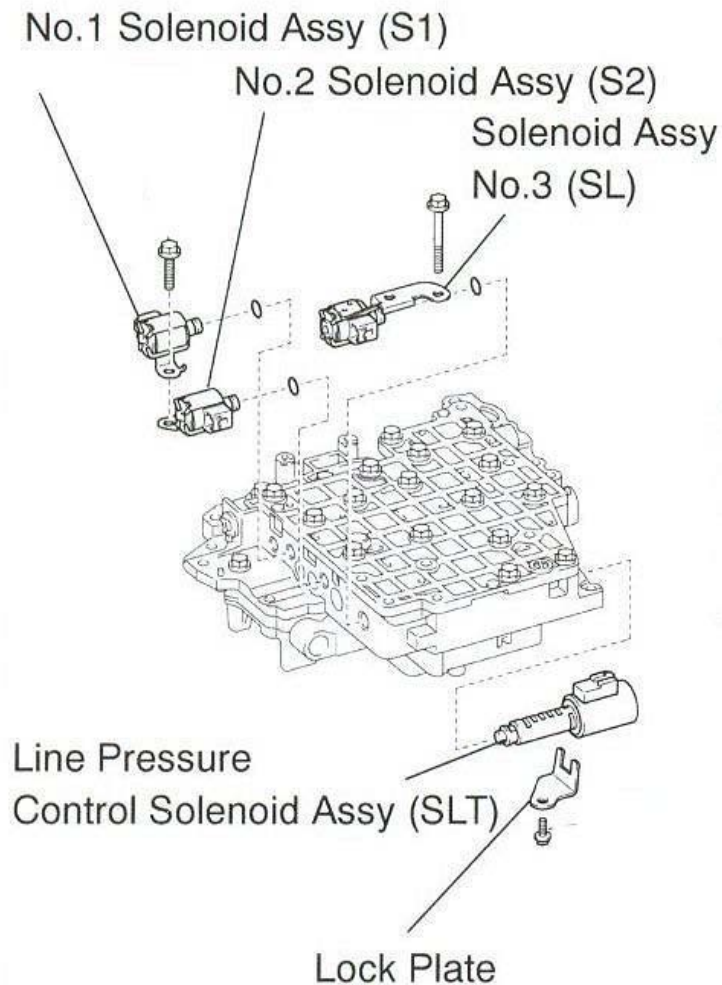
Application: Toyota

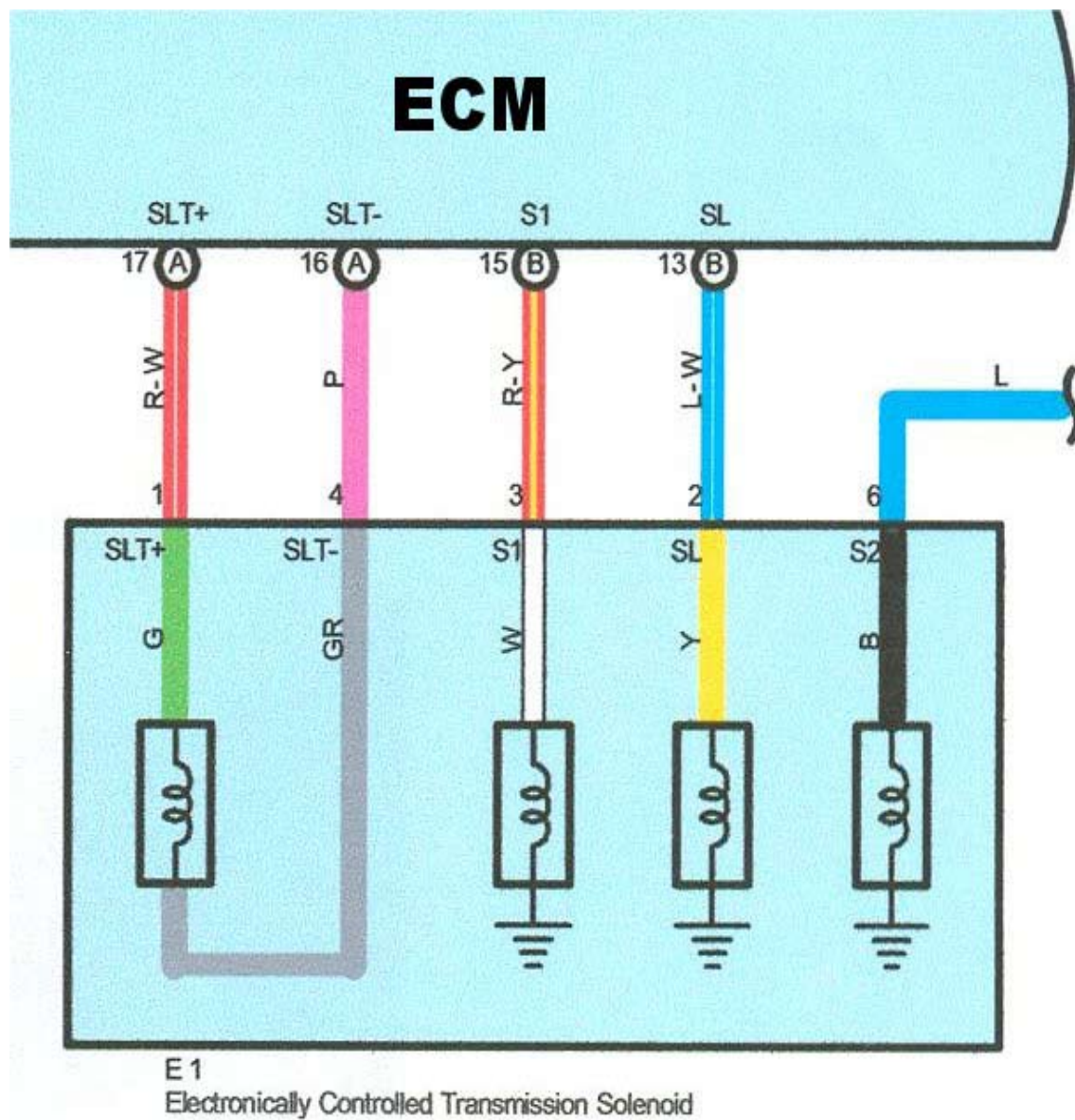
Issue Date: November, 2008

A246E

Internal Wiring Harness Installation

Use the illustrations below to correctly identify the solenoids and connect the internal wiring harness to the proper solenoid.







Technical Bulletin # 1211

Transmission: RE5R05A

Subject: Reverse Clutch Anti-Rattle Clip Installation

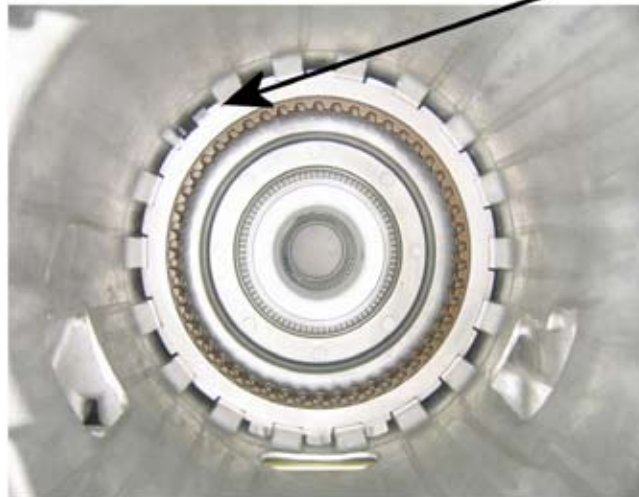
Application: Nissan, Infinity

Issue Date: November, 2008

RE5R05A

Reverse Clutch Anti-Rattle Clip Installation

Refer to the illustrations for proper anti-rattle clip installations. The anti-rattle clip goes in the 10:30 position before the clutch retaining snap ring is installed.





Technical Bulletin # 1212

Transmission: AX4S/AX4N

Subject: Delay and/or No Reverse

Application: Ford, Lincoln, Mercury

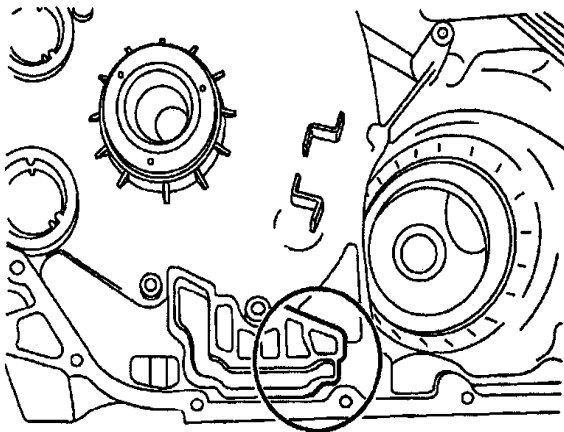
Issue Date: November, 2008

AX4S/AX4N

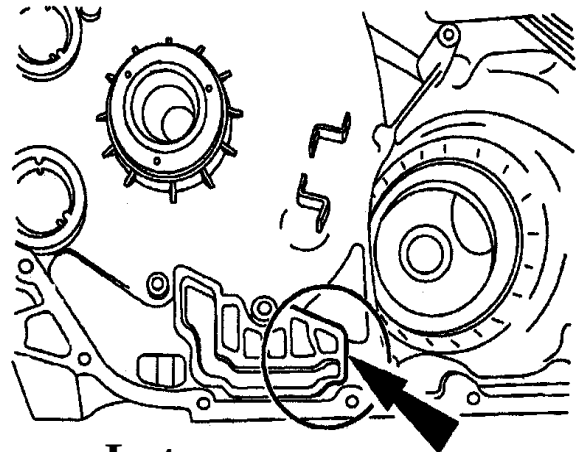
Delay and/or No Reverse

Changes to the AX4S/AX4N cases went into affect after a build date of 8/1999.

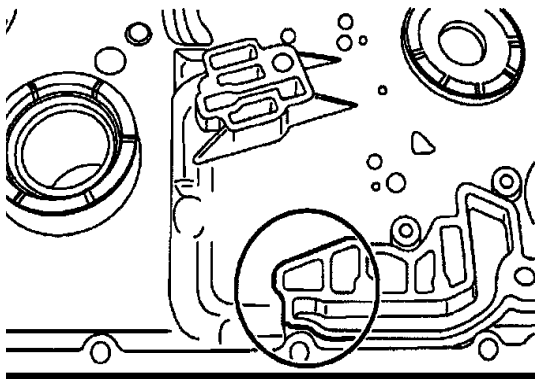
Case Assembly



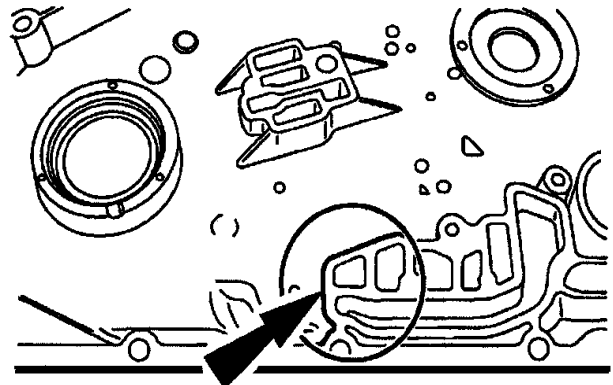
Early



Late



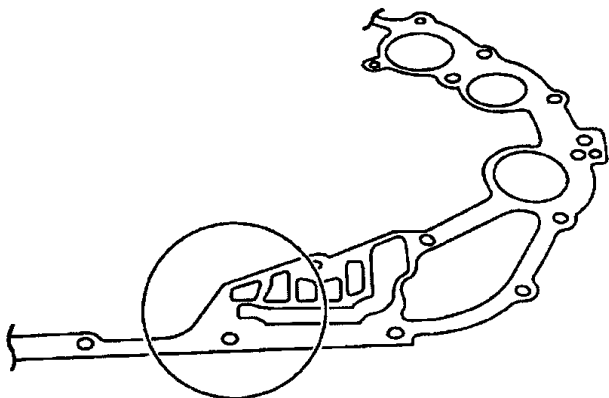
Early



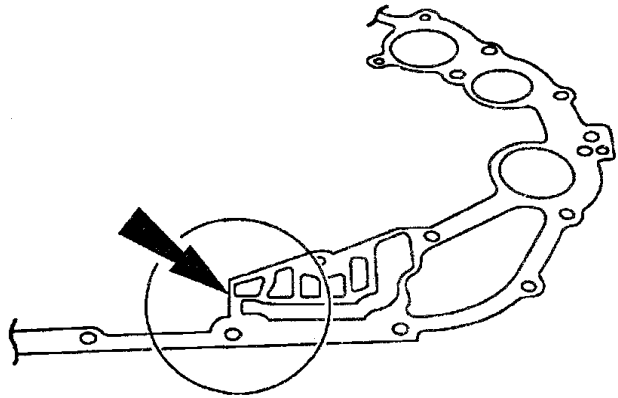
Late

Technical Bulletin # 1212

Side Cover Gasket

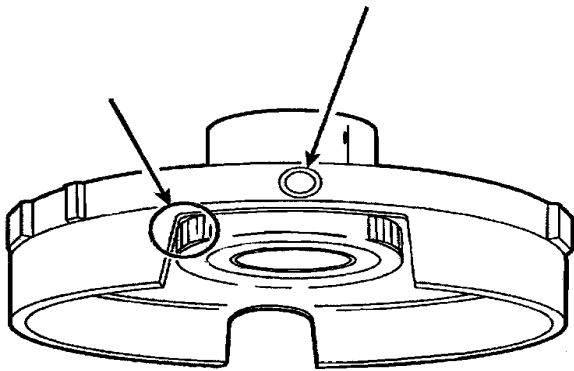


Early

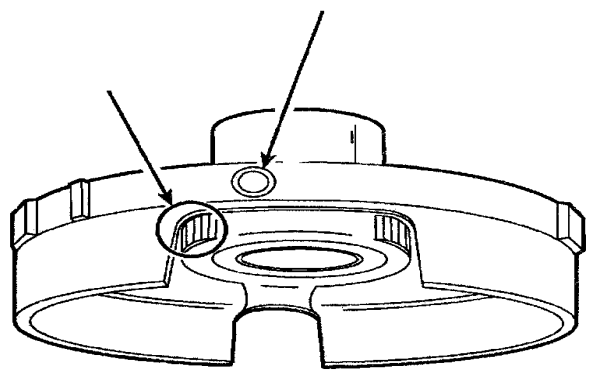


Late

Sprocket Support Assembly



Early



Late



Technical Bulletin # 1213

Transmission: 4T65E

Subject: Late "Diode" Type Sprag Interchange

Application: 1997-up 4T65E

Issue Date: November, 2008

1997 - up 4T65E

Late "Diode" Type Mechanical Sprag Interchange

Starting in the 2003 model year, the 4T65E started using a newly designed direct and input sprag. The new design implements a mechanical diode type design and is now a two piece set instead of the one piece stacked set in earlier models.

The new design can be interchanged back to the 1997 model year transaxle by omitting the spacer between the early designed sprag assembly and sun gear as well as changing the input clutches to the new 30 tooth spline instead of the earlier 32 tooth design. All height dimensions have remained the same so no end play adjustments are needed.

Part numbers:

Diode Input Sprag: Borg Warner-13013BW OEM-24216816

30 Tooth Input Friction: Borg Warner-29194AM OEM-24216502

Diode Direct Sprag: Borg Warner-13000BW OEM-24216817

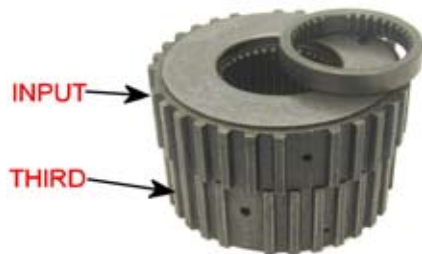
EARLY



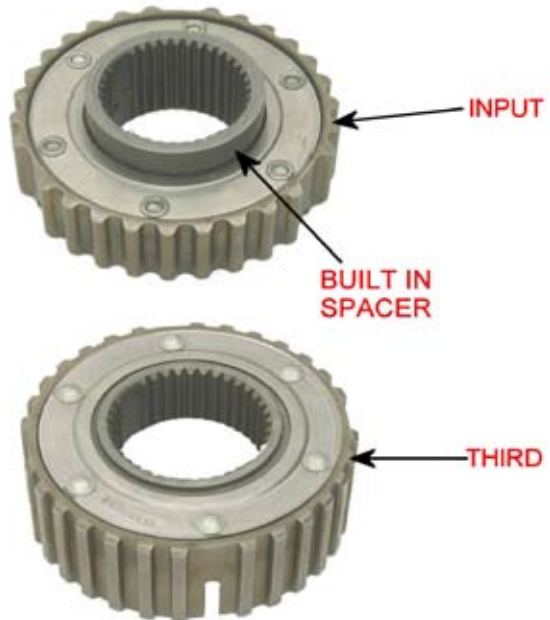
LATE



EARLY



LATE



EARLY
32 TOOTH



LATE
30 TOOTH





Technical Bulletin # 1214

Transmission: *ALL Toyota/Lexus*

Subject: *Broken Case, Transmission Failure*

Application: *1990-2009 Toyota/Lexus*

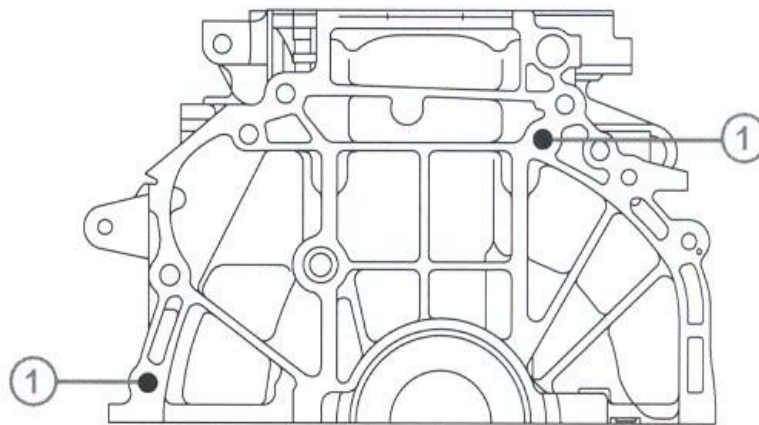
Issue Date: *November, 2008*

All Toyota/Lexus

Broken Case, Transmission Failure

Missing, Damaged, or Worn alignment pins may result in incorrect alignment and failure of the Transmission/transaxle assembly.

Toyota Part Numbers:
90250-10113





Technical Bulletin # 1215

Transmission: U250E

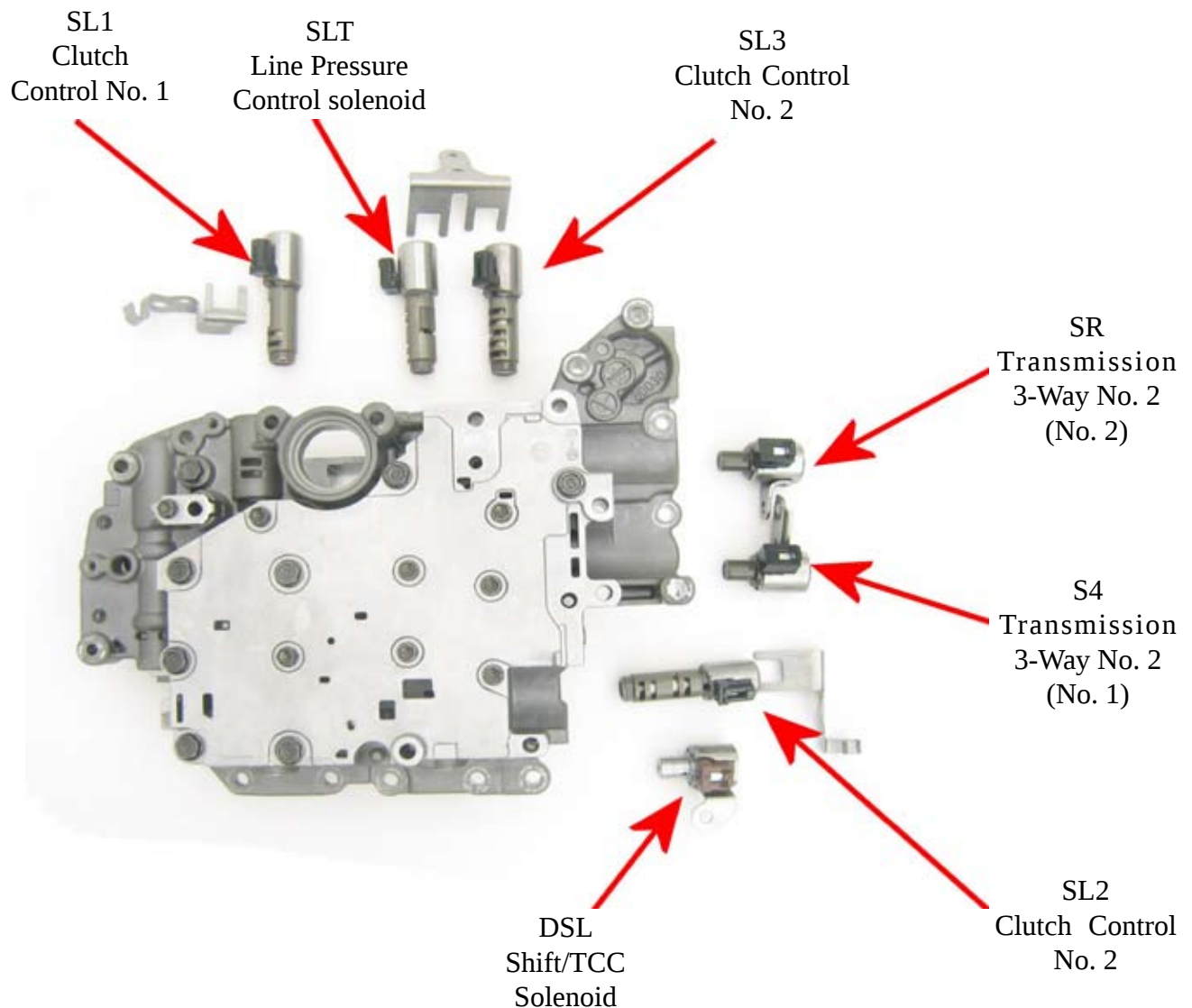
Subject: Solenoid Identification and Location

Application: Toyota/Lexus

Issue Date: November, 2008

U250E

Solenoid Identification and Location





Technical Bulletin # 1216

Transmission: U250E

Subject: Harsh 5-4 Downshift

Application: 2005 Camry

Issue Date: November, 2008

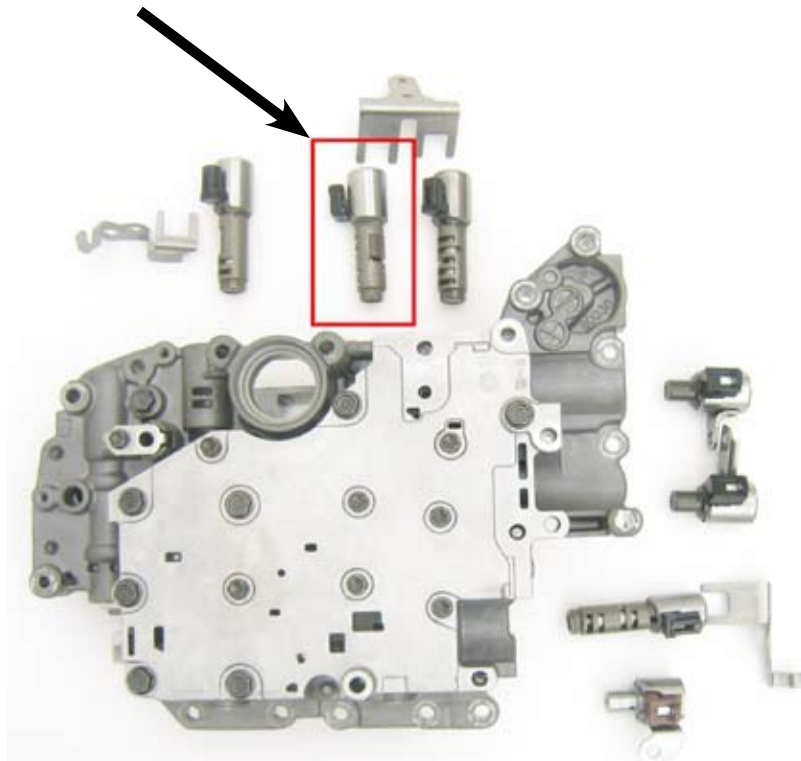
U250E

Harsh 5-4 Downshift

Camry's equipped with the 2AZ-FE engine and the U250E transaxle may exhibit a 5-4 harsh downshift during normal operation, after driving above 45 mph and decelerating through 28 mph.

The Line Pressure Control Solenoid Assembly (SLT) has been improved to reduce this condition.

Toyota Part Number:
35290-45010





Technical Bulletin # 1218

Transmission: 4F27E

Subject: Service

Application: Ford, Mazda

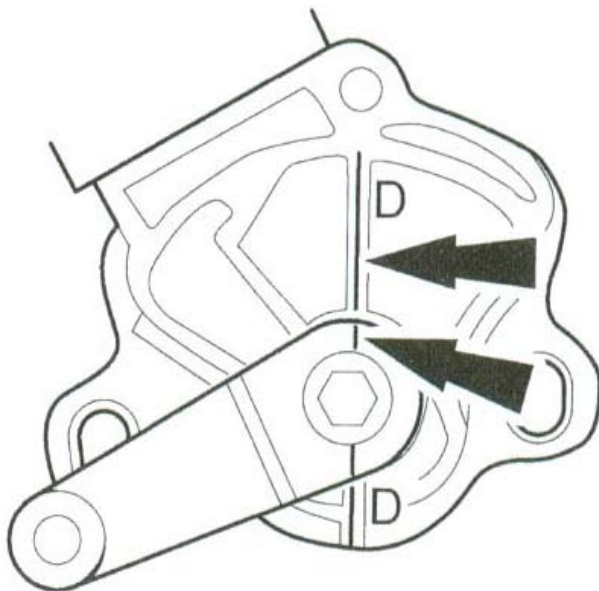
Issue Date: December, 2008

4F27E

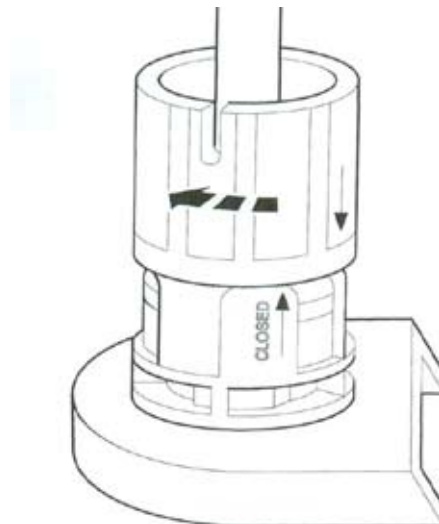
Service

Some Ford and Mazda vehicles with the 4F27E transaxle may not shift correctly after overhaul or service. This may be caused by a miss adjusted shifter cable. Use the following information to locate the shift cable in the correct location.

1. Make sure the transaxle shift lever and park/neutral switch are aligned in the Drive range.



2. Rotate the locking collar on the shifter cable so the 2 arrows are not aligned. If necessary, install and attach cable to brackets and that the cable ends are clipped in place.
3. Rotate the locking collar until the 2 arrows are aligned to secure the selector cable.





Technical Bulletin # 1219

Transmission: 4T40/45E

Subject: Oil Leaking at Left Axle

Application: Chevrolet, Pontiac, Oldsmobile, Saturn

Issue Date: December, 2008

4T40/45E

Oil Leaking from the Left Axle

Some of the listed General Motors built cars with the 4T40/4T45-E transaxle may have oil leaking around the left axle seal. Inspect the seal and axle for wear or damage. If none is found, the problem may be worn chain-sprocket-support splines or the splines on the direct and coast clutch housing. This allows the axle shaft to run out of alignment and cause the front axle shaft to leak. Replace parts as needed.



Figure 1 Checking Chain Sprocket Splines for Wear



Technical Bulletin # 1220

Transmission: 6F50

Subject: DTCs P0715, P0717, P0718, P0720, P0721, P0722

Application: Ford, Lincoln, Mercury

Issue Date: December, 2008

6F50

(DTCs) P0715, P0717, P0718, P0720, P0721, P0722 and/or Harsh Engagements, No Upshift, Fifth Gear Only

Output Shaft Speed (OSS) sensor or Turbine Shaft Speed (TSS) sensor diagnostic trouble code(s) (DTCs) P0715, P0717, P0718, P0720, P0721, P0722 and/or harsh engagements, no upshift, fifth gear only, could have an intermittent short in the OSS or TSS sensor.

1. If any DTCs related to OSS or TSS are present, check the transaxle build date
 - a. If the build date is before 10/21/2007 go to Step 2.
 - b. If vehicle transaxle is built on or after 10/21/2007 follow normal Diagnosis and Testing.
2. The TSS sensor is located in the end cover assembly. The OSS sensor is located inside the transaxle under the valve body. Both sensor connectors are plugged into the solenoid body. Both sensor connectors look the same but are wired differently.

**OSS is located
on the end cover**



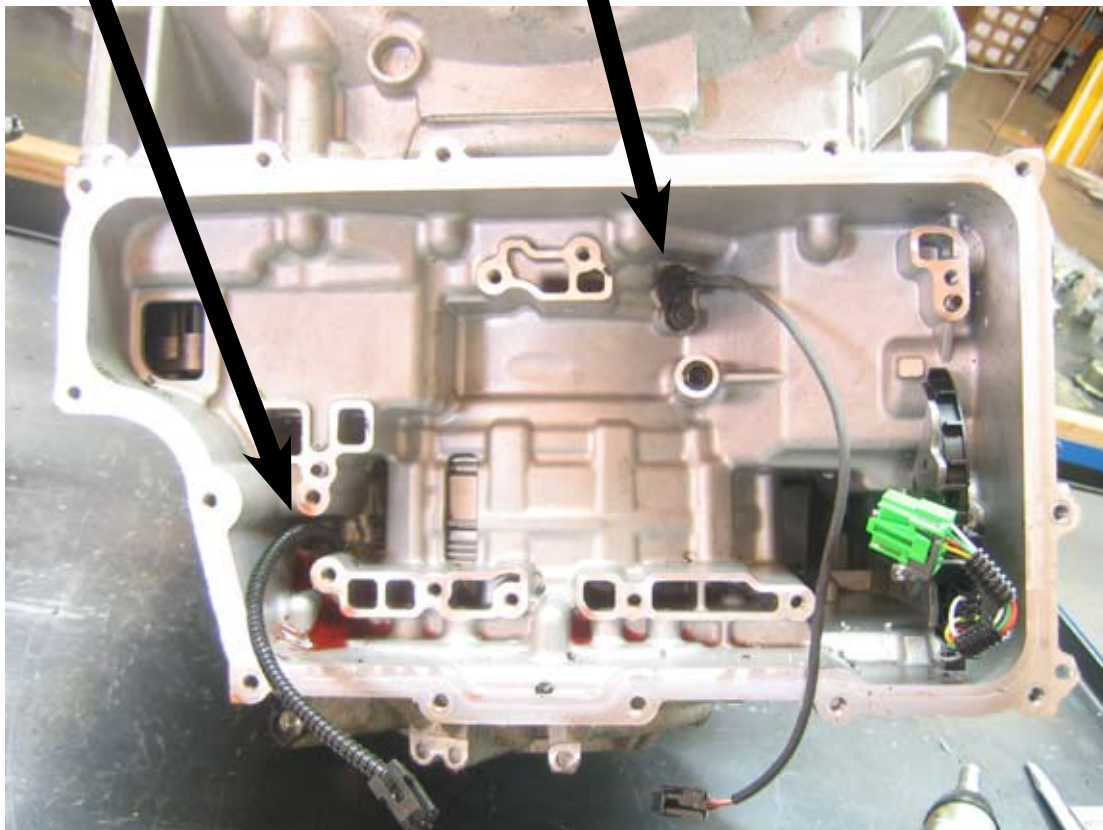
**TSS is located
under the VB**





**OSS is located
on the end cover**

**TSS is located
under the VB**





Technical Bulletin # 1221

Transmission: F4A42

Subject: Harsh or flared 2-3 shift and/or low speed shift shock

Application: Kia

Issue Date: December, 2008

F4A42

Harsh or Flared 2-3 Shift and/or Low Speed Shift Shock

When experiencing this condition with the above vehicles, it may be necessary to reprogram the ECM. To see if your vehicle has the update, go to "Vehicle Identification" (Mode \$09) using the Global OBDII option in your scanner. Once identity has been established, choose option 2, "Calibration Identification". There you will find the eight digit ROM ID for your vehicle. Use the chart below to see what calibration code your vehicle has to see if the flash pertains to the complaint. If your ROM ID matches the "Previous" ID's, the ECM must be reflashed.

ROM ID INFORMATION TABLE

Model Year	Option	Part Number	Vehicle ROM ID	
			Previous	New
2004	CAL (SULEV)	39130 23530	L0C160T0	L0C160T3
	NAS (ULEV)	39130 23510	L0N160T0	L0N160T3
2005	CAL (SULEV)	39130 23531	L0C19GT0	L0C19GT1
	NAS (ULEV)	39130 23511	L0N19GT0	L0N19GT1
2006	CAL (SULEV)	39130 23532	L0C1D0T0	L0C1D0T1



Technical Bulletin # 1222

Transmission: Mercedes 722.6 Series

Subject: 2-3 Drag, Bind or No 2-3 Shift Failsafe

Application: Mercedes, Dodge, NAG1, Jaguar, XTR

Issue Date: December, 2008

Mercedes 722.6 series

2-3 Drag, Bind or No 2-3 Shift Failsafe

A drag or bind during a 2-3 shift or no 2-3 and then failsafe after rebuild. Upon disassembly of the transmission it is discovered that the K2 clutch shown in figure 1 has cut through the rear planet hub in figure 2 (shown on page 2).

This is caused by installing the incorrect K2 clutch during the transmission rebuild. There are two different internal tooth diameters shown in figure 3 on page 3, one measuring 5.480" and the other 5.690. This difference in diameter was designed for a 3 pinion rear planet with a K2 clutch hub size of 5.455" for smaller engine vehicles along with a larger 4 pinion hub size of 5.670" for larger engine vehicles seen in figure 4 on page 3. The outside diameter along with friction thickness is the same for both K2 clutches. Always check the for internal diameter fit of the K2 clutch over the rear planetary hub as shown in figures 5 and 6 on page 4 during every rebuild to prevent a mistake.

The part numbers and friction information listed below will aid in selecting the correct K2 clutch when rebuilding a 722.6 transmission whether the unit has a 3 or 4 pinion planet.

722.6 K2 Clutch (.085") 36 Teeth (6 1/2"OD) 1996-Up (With 5.480" ID Fits a **3 Pinion Rear Planet**) quantity 6 Mercedes part # 210-272-00-25

722.6 K2 Clutch (.085") 36 Teeth (6 1/2"OD) 1996-Up (With 5.690" ID, Fits a **4 Pinion Rear Planet**) quantity 6 Mercedes part #140-272-01-25



Figure 1

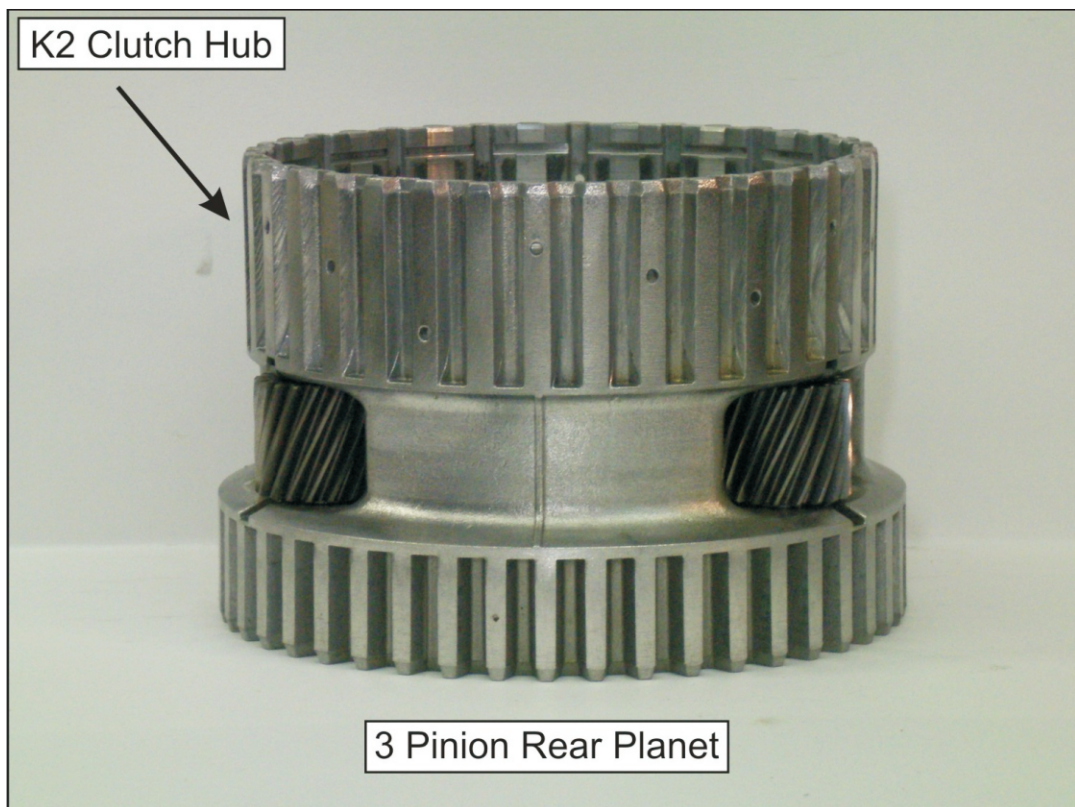


Figure 2

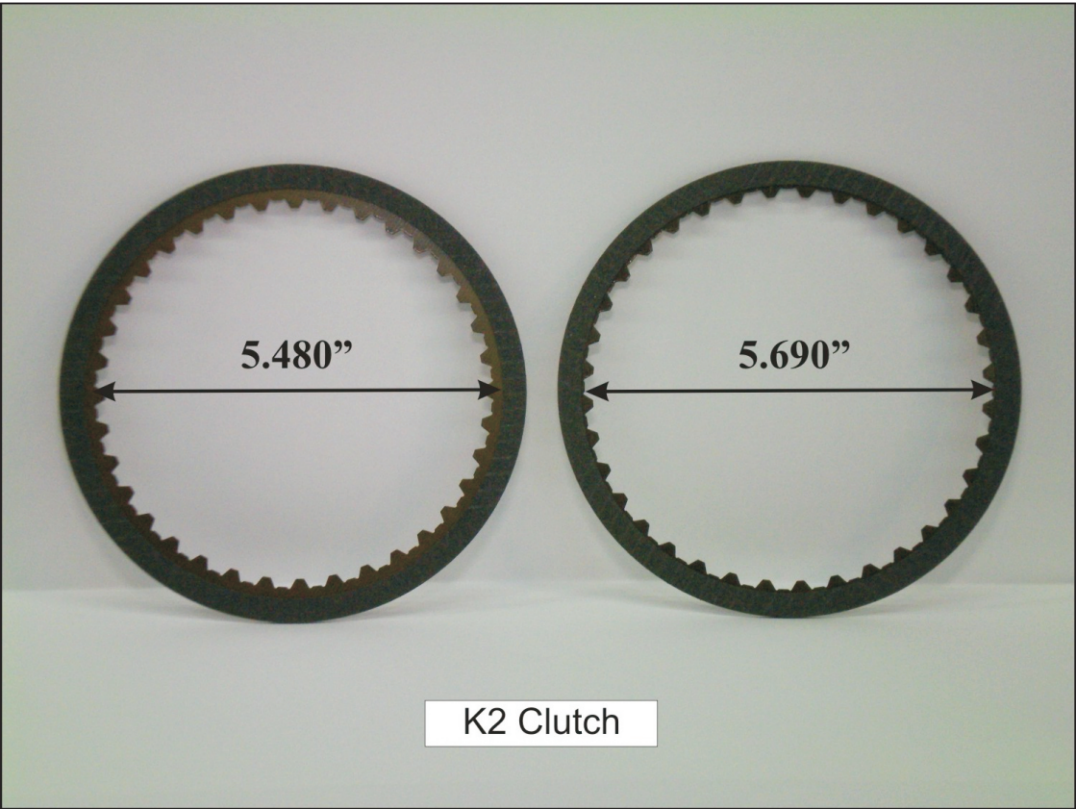


Figure 3

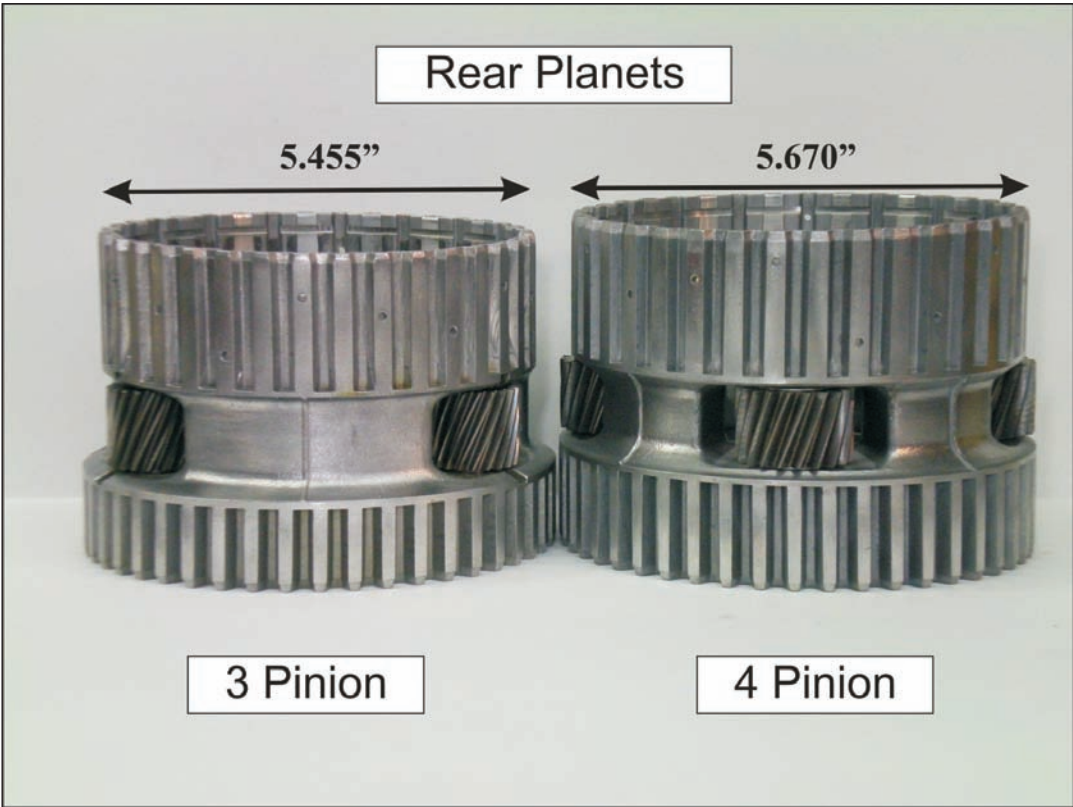


Figure 4

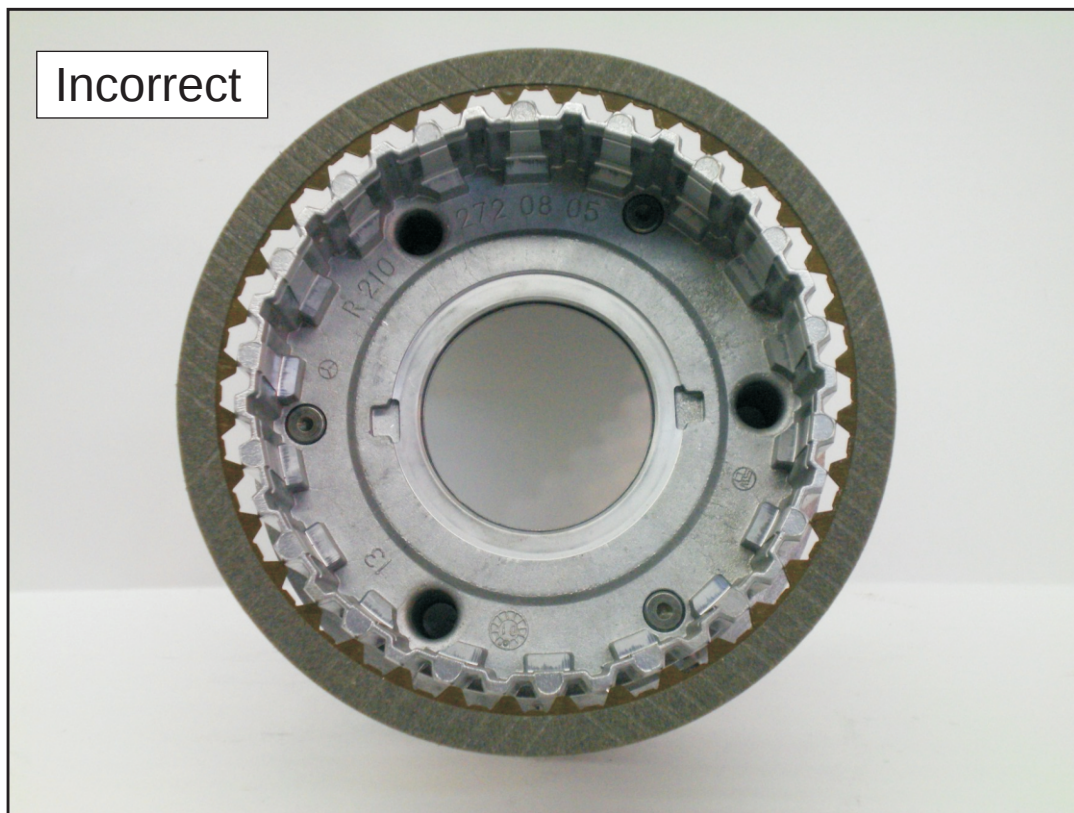


Figure 5

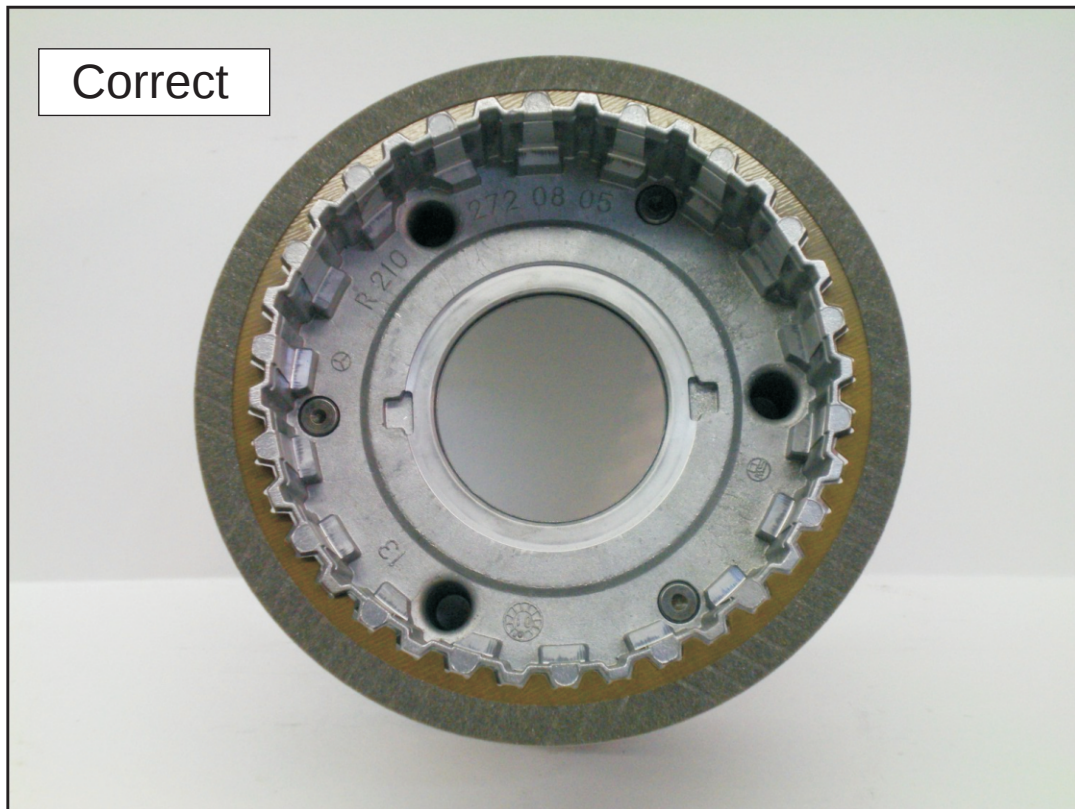


Figure 6



Technical Bulletin # 1223

Transmission: AX4N

Subject: Accumulator Spring Identification

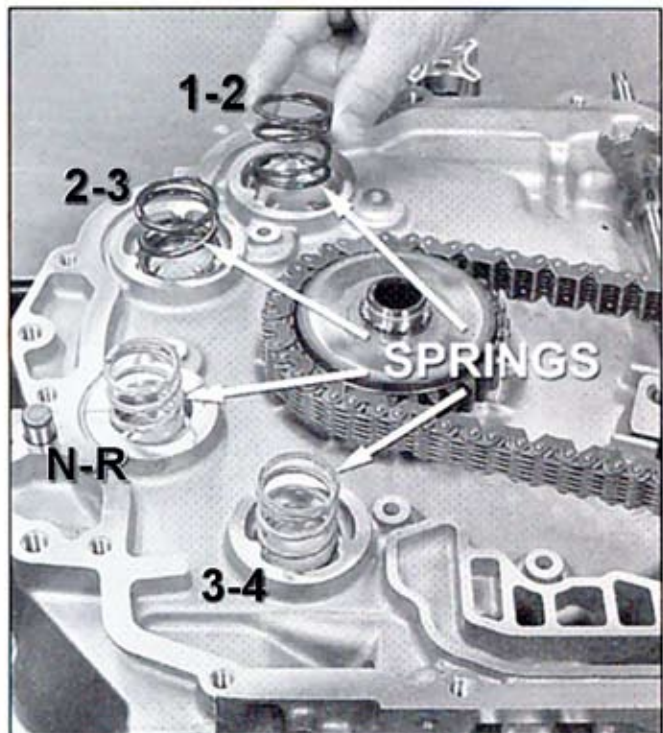
Application: Ford, Lincoln, Mercury

Issue Date: December, 2008

AX4N

Accumulator Spring Identification

This bulletin covers 2000-2007, refer to ATRA bulletin #445.



Accumulator Location	Spring Color ID	
	2000-2003	2004-2007
Intermediate (1-2)	no color	no color or brown
Direct (2-3)	orange	no color or brown
Reverse (N-R)	yellow	pink
Overdrive (3-4)	blue	pink



Technical Bulletin # 1224

Transmission: B7WA

Subject: Code 743/P1753

Application: 2001-2003 Acura TL 3.2L

Issue Date: December, 2008

B7WA

Code 743/P1753

Some 2001-03 Acura TL with 3.2L and B7WA transmission may exhibit a DTC 743/P01753 for a fault in the TCC solenoid circuit. This may be caused by a problem in the TCC solenoid circuit or ground. Make sure the solenoid has a resistance of 15-25 ohms. Check for a missing or loose transaxle ground between the transaxle case and chassis. The transaxle case ground is located under the battery tray. Clear the code and make sure it does not re-appear.

