

1990 Ford Escort GT

AUTO TRANS OVERHAUL - FORD ATX/FLC AUTOMATIC TRANSMISSIONS Ford ATX/FLC

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AUTOMATIC TRANSMISSIONS Ford ATX/FLC

APPLICATION

ATX/FLC APPLICATION

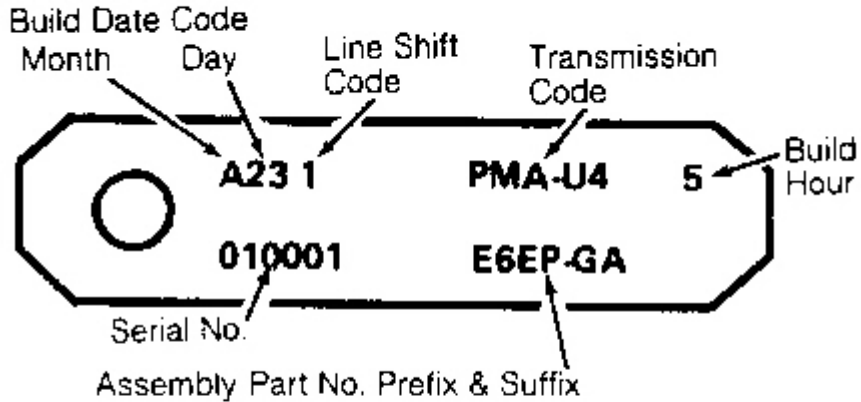
Models	Engine
Escort	
1981-85	1.6L EFI
1982-85 EXP	1.6L EFI
1985-90	1.9L EFI
1986-88 EXP	1.9L EFI
1988-90	1.9L HO EFI
LN7 (1982-83)	1.6L EFI
Lynx	
1981-85	1.6L EFI
1985-87	1.9L EFI
Sable (1986)	2.5L EFI
Tempo & Topaz (1984-92)	2.3L EFI
Taurus (1986-91)	2.5L EFI

IDENTIFICATION

NOTE: Manufacturer's nomenclature changed in 1992 to FLC from ATX but transmission is the same.

Transaxle can be identified by the letter "B" on lower line of Vehicle Certification Label under "TR". The label is attached to left side door lock panel. Gear ratio is determined by the letter code under "AX" of Vehicle Certification Label.

Transaxle can also be identified by a metal tag attached to side of bellhousing. See **Fig. 1**. First line on tag shows build date code and model number. Bottom line on tag shows serial and assembly part number prefix and suffix. Always refer to this tag when ordering parts.



92I14041

Fig. 1: Transmission Identification Tag
 Courtesy of FORD MOTOR CO.

DESCRIPTION

The ATX combines a 3-speed automatic transmission and differential into a single unit designed for front wheel drive vehicles. Transmission and differential are housed in a light-alloy housing. The transmission uses 3 friction clutches, one band, and a single one-way clutch.

LUBRICATION & ADJUSTMENTS

See appropriate AUTOMATIC TRANSMISSION SERVICING article in TRANSMISSION SERVICING.

- For 1981-85 Escort 1.6L EFI, see [TRANSMISSION SERVICING - A/T](#)
- For 1982-85 Escort EXP 1.6L EFI, see [TRANSMISSION SERVICING - A/T](#)
- For 1985-90 Escort 1.9L EFI, see [TRANSMISSION SERVICING - A/T](#)
- For 1986-88 Escort EXP 1.9L EFI, see [TRANSMISSION SERVICING - A/T](#)
- For 1988-90 Escort 1.9L HO EFI, see [TRANSMISSION SERVICING - A/T](#)
- For 1982-83 LN7 1.6L EFI, see [TRANSMISSION SERVICING - A/T](#)
- For 1981-85 Lynx 1.6L EFI, see [TRANSMISSION SERVICING - A/T](#)
- For 1985-87 Lynx 1.9L EFI, see [TRANSMISSION SERVICING - A/T](#)
- For 1986 Sable 2.5L EFI, see [TRANSMISSION SERVICING - A/T](#)

- For 1984-92 Tempo & Topaz 2.3L EFI, see TRANSMISSION SERVICING - A/T
- For 1986-91 Taurus 2.5L EFI, see TRANSMISSION SERVICING - A/T

ON-VEHICLE SERVICE

DRIVE AXLE SHAFTS

See appropriate AXLE SHAFTS - FRONT article in DRIVE AXLES.

- For 1981-85 Escort 1.6L EFI, see AXLE SHAFTS - FRONT
- For 1982-85 Escort EXP 1.6L EFI, see AXLE SHAFTS - FRONT
- For 1985-90 Escort 1.9L EFI, see AXLE SHAFTS - FRONT
- For 1986-88 Escort EXP 1.9L EFI, see AXLE SHAFTS - FRONT
- For 1988-90 Escort 1.9L HO EFI, see AXLE SHAFTS - FRONT
- For 1982-83 LN7 1.6L EFI, see AXLE SHAFTS - FRONT
- For 1981-85 Lynx 1.6L EFI, see AXLE SHAFTS - FRONT
- For 1985-87 Lynx 1.9L EFI, see AXLE SHAFTS - FRONT
- For 1986 Sable 2.5L EFI, see AXLE SHAFTS - FRONT
- For 1984-92 Tempo & Topaz 2.3L EFI, see AXLE SHAFTS - FRONT
- For 1986-91 Taurus 2.5L EFI, see AXLE SHAFTS - FRONT

VALVE BODY

Removal

Remove battery and battery tray. Remove ignition coil, transaxle dipstick and air cleaner assembly. Disconnect supply hoses and vacuum lines from air management valve (if equipped). Remove air management valve from valve body cover. Remove valve body cover and gasket. Remove valve body and gasket from transaxle case. For valve body repairs, see VALVE BODY ASSEMBLY under COMPONENT DISASSEMBLY & REASSEMBLY.

Installation

1. Install 2 Alignment Pins (T80L-77100-A) into opposing valve body attaching bolt holes. Install valve body-to-case gasket. Install valve body assembly into case, removing one alignment pin to allow attachment of manual valve to "Z" link. Reinstall alignment pin.

NOTE: **Ensure roller, located on end of throttle valve plunger has engaged cam, which is located on end of throttle lever shaft.**

2. Connect the throttle valve control spring. Remove the alignment pins. Install the valve body attaching bolts, detent spring, main oil pressure regulator baffle plate and the transaxle control baffle plate. Tighten the valve body attaching bolts, in sequence, to specification. See the TORQUE SPECIFICATIONS . Also, see Fig. 19 .

3. Install new valve body cover gasket on case. Install cover attaching bolts. To complete installation, reverse removal procedure. Check transaxle fluid level and add fluid if necessary.

GOVERNOR

Removal

Remove air cleaner. Using a long screwdriver, remove governor retaining clip. Remove governor cover and pull out governor. For governor repairs, see **GOVERNOR OVERHAUL** under COMPONENT DISASSEMBLY & REASSEMBLY.

Installation

To install governor, reverse removal procedure. Slide governor in carefully, allowing gear teeth to mesh. DO NOT force in. Install a new "O" ring seal on governor cover. Check transaxle fluid level and add fluid if necessary.

LOW-INTERMEDIATE SERVO

Removal

1. Disconnect fan motor and water temperature sending unit wiring. Disconnect FM capacitor wiring (if equipped). Remove fan and shroud assembly.
2. Remove filler tube bolt and rotate filler tube to clear servo cover. Remove lower left mount-to-case attaching bolt from left front mount. Using Servo Compressor (T81P-70027-A), compress servo cover and remove retaining snap ring. Remove cover and servo assembly.

Installation

To install servo, reverse removal procedure. Refill transaxle with fluid.

OIL COOLER FLUSHING

Contaminates **MUST** be removed from oil cooler before transmission is put back into service. Replace cooler supply tubes if leaking. Thoroughly flush oil cooler and lines if a major service or transaxle removal has occurred. It is recommended that a mechanically agitated cleaner, such as Rotunda (014-00028) or equivalent be used.

TORQUE CONVERTER FLUSHING

Whenever transmission has been disassembled to replace worn or damaged parts or because valve body sticks due to foreign material, converter must be cleaned using a mechanically agitated cleaner, such as Rotunda (014-00028). Under no conditions should converter be cleaned by hand agitation using solvent. After converter is removed from cleaner, thoroughly drain solvent through hub. Add approximately 2 qts. (1.9L) clean ATF to converter. Agitate fluid by hand. Thoroughly flush ATF from converter.

TROUBLE SHOOTING

PRELIMINARY INSPECTION

Always check fluid level and manual linkage adjustment before trouble shooting. See appropriate AUTOMATIC TRANSMISSION SERVICING article in TRANSMISSION SERVICING.

- For 1981-85 Escort 1.6L EFI, see [TRANSMISSION SERVICING - A/T](#)
- For 1982-85 Escort EXP 1.6L EFI, see [TRANSMISSION SERVICING - A/T](#)
- For 1985-90 Escort 1.9L EFI, see [TRANSMISSION SERVICING - A/T](#)
- For 1986-88 Escort EXP 1.9L EFI, see [TRANSMISSION SERVICING - A/T](#)
- For 1988-90 Escort 1.9L HO EFI, see [TRANSMISSION SERVICING - A/T](#)
- For 1982-83 LN7 1.6L EFI, see [TRANSMISSION SERVICING - A/T](#)
- For 1981-85 Lynx 1.6L EFI, see [TRANSMISSION SERVICING - A/T](#)
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- For 1986 Sable 2.5L EFI, see [TRANSMISSION SERVICING - A/T](#)
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- For 1986-91 Taurus 2.5L EFI, see [TRANSMISSION SERVICING - A/T](#)

SYMPTOMS

No Forward Or Reverse

Sticking or loose valve body. Internal leakage. Worn clutches or band. Broken oil pump drive shaft. Broken axle or CV joint.

Harsh Engagement

Idle speed too high. Loose axle shafts or engine mounts. Sticking valve body. Incorrect control pressure.

No Forward Drive, Reverse Okay

Incorrect one-way clutch or band application. Damaged or worn band or servo. Valve body loose.

No Reverse Drive Or Chatters In Reverse, Forward Okay

Valve body loose or dirty. Damaged or worn reverse clutch. Damaged or worn torque converter adapter sleeve.

Slips In 1st Gear In "D"

Damaged or worn band.

Slips In 2nd Gear

Dirty or sticking valve body. Internal oil leaks. Defective intermediate clutch.

Starts Off In 2nd Or 3rd

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Governor valve stuck open. Valve body loose or dirty. Cross leaks between valve body and case.

Shifts Points Incorrect

Damaged or worn governor. Dirty or sticking valve body. Incorrect control pressure.

No Upshift In "D" At Any Speed

Damaged or worn governor. Dirty or sticking valve body. Incorrect control pressure.

No Forced Downshifts

Damaged internal throttle valve lever. Dirty or sticking governor. Low control pressure. Dirty or sticking valve body.

Engine Flare Up On Downshift

Dirty or sticking valve body. Defective band or servo.

No Engine Braking In Low Or Second

Defective band or clutch assembly. Dirty or sticking valve body. Incorrect control pressure.

Mushy Or Rough 1-2 Shift

Incorrect intermediate clutch application. Dirty or sticky valve body.

Rough 2-3 Shift, 1-2 Shift Okay

Incorrect engine performance. Incorrect band release or direct clutch application. Worn servo release and direct clutch piston check ball. Dirty or sticky valve body.

Slow Initial Engagement

Incorrect clutch and band application, or control pressure. Dirty valve body.

Shifts 1-3 In "D"

Intermediate friction clutch faulty. Sticking or dirty valve body. Incorrect clutch and band application or control pressure.

Noise Present During All Drive Ranges

Damaged speedometer driven gear. Check CV joints, half-shafts and engine mounts for looseness.

NOTE: These problems may be the result of an improperly repaired transmission.

No Forward Gears, Reverse Okay

Servo assembly not contacting 1-2 band. Broken 1-2 band. (Late design planetary assembly mismatched with early ring gear or split pinion planet mismatched with short ring gear.)

Binds In Reverse, Okay In Forward Gear

Wrong valve body gaskets. 2-3 back-out valve and bore plug out of position.

Binds In Reverse, Goes Forward In Neutral

Late design 1-2 band in early design case. Sun gear seized to ring gear because of bad ring gear bushing.

No Reverse, Forward Gears Okay

Reverse clutch piston lip seals rolled over during installation.

No Upshifts

Stripped governor drive and driven gear. Broken torque converter damper in planetary style converters. Sticking 1-2 shift valve. Burnt intermediate clutch. Leaking intermediate clutch Teflon oil control rings (use metal rings only).

Erratic 2-3 Shift Or 2-3 Shift Flare

Teflon oil control rings (use metal rings only). Remove No. 2 check ball in valve body and enlarge direct clutch apply hole in separator plate. Use short lip seal on direct clutch piston.

Neutral Condition On 2-3 Shift

No. 2 check ball installed in valve body with only one hole in separator plate. Bottom steel plate rotates and catches under inside ribs of direct clutch drum blocking the apply piston.

2-3-2-3 Shuttle Shift

Loose governor gears. Worn governor valves.

Sensitive 3-2 Downshifts

Throttle valve linkage misadjusted. Wrong throttle valve cam. Loose governor drive and driven gears.

CAUTION: The following "field fix" is not approved by Ford Motor Co. but has been found to help cure sensitive 3-2 downshifts.

Remove 3-2 control valve and discard its spring. Install a C-4 check ball in bottom of bore. Install 3-2 control valve without its spring.

Chatter Or Shudder Coming To Stop

Sticking governor. Sticking shift valves (especially the 2-3 shift valve).

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No 2-3 Upshift

Valve body over torqued, causing sticking 2-3 shift valve. Worn governor valves.

CLUTCH & BRAKE BAND APPLICATIONS

CLUTCH & BRAKE BAND APPLICATION CHART

Selector Lever Position	Elements In Use
"D" (Drive)	
1st Gear	Band & One-Way Clutch
2nd Gear	Band & Intermediate Clutch
3rd Gear	Direct Clutch & Intermediate Clutch
"2" (2nd Gear Low)	Band & Intermediate Clutch
"1" (Low)	Band, Direct Clutch & One-Way Clutch
"R" (Reverse)	Direct Clutch, Reverse Clutch & One-Way Clutch
"N" & "P" (Neutral & Park)	One-Way Clutch

TESTING

NOTE: Before testing, always check fluid level and manual linkage adjustment. See appropriate **AUTOMATIC TRANSMISSION SERVICING** article in **TRANSMISSION SERVICING**.

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- For 1982-85 Escort EXP 1.6L EFI, see [TRANSMISSION SERVICING - A/T](#)
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- For 1986-91 Taurus 2.5L EFI, see [TRANSMISSION SERVICING - A/T](#)

ROAD TEST

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This check will determine if governor pressure and shift control valves are functioning properly.

1. Check minimum throttle upshifts in Drive. Transaxle should start in 1st gear, shift to 2nd, and then shift to 3rd at approximately the speeds shown in **ATX SHIFT SPEEDS**.
2. With transaxle in 3rd, depress accelerator pedal to floor. Transaxle should shift from 3rd to 2nd or 1st, depending on vehicle speed. See **ATX SHIFT SPEEDS**.
3. Check closed throttle downshifts from 3rd to 1st by coasting down from approximately 30 MPH in 3rd gear. Shift should occur at approximate speed shown in **ATX SHIFT SPEEDS**.

NOTE: Specifications given below are approximate. All shift speeds may vary somewhat due to production tolerances, rear axle ratios or emission control equipment.

4. With transaxle in 3rd and road speed above 30 MPH, transaxle should shift to 2nd gear when selector lever is moved from 3rd to 1st. Transaxle will shift into 1st when road speed is less than 30 MPH. When transaxle is shifted from Drive to 2nd, it should shift into 2nd gear regardless of vehicle speed.

NOTE: When "2" is selected, transaxle will operate in 1st and 2nd gears.

ATX SHIFT SPEEDS

NOTE: For transmission model identification, see **Fig. 1**.

MODEL PMA-AU (3.26 AXLE RATIO)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	11-18
"D" (1)	2-3	17-32
"D"	3-2	16-25
"D"	2-1	8-14
"1"	2-1	20-38
Part Throttle		
"D"	1-2	14-30
"D"	2-3	30-47
"D"	3-2	21-40
"D"	2-1	16-23
Wide Open Throttle		
"D"	1-2	22-51
"D"	2-3	62-79
"D"	3-2	57-74
"D"	2-1	22-38
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

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MODEL PMA-BE (3.26 AXLE RATIO)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	12-19
"D" (1)	2-3	18-33
"D"	3-2	17-26
"D"	2-1	9-15
"1"	2-1	22-40
Part Throttle		
"D"	1-2	15-31
"D"	2-3	32-49
"D"	3-2	22-41
"D"	2-1	16-23
Wide Open Throttle		
"D"	1-2	23-52
"D"	2-3	65-82
"D"	3-2	60-77
"D"	2-1	23-39
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

MODEL PMB-X (3.26 AXLE RATIO)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	11-18
"D" (1)	2-3	17-32
"D"	3-2	16-25
"D"	2-1	8-14
"1"	2-1	21-39
Part Throttle		
"D"	1-2	14-30
"D"	2-3	31-48
"D"	3-2	21-40
"D"	2-1	16-23
Wide Open Throttle		
"D"	1-2	22-51
"D"	2-3	62-79
"D"	3-2	57-74
"D"	2-1	22-38
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

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MODEL PMB-W (3.26 AXLE RATIO)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	12-19
"D" (1)	2-3	18-33
"D"	3-2	17-26
"D"	2-1	9-15
"1"	2-1	22-44
Part Throttle		
"D"	1-2	15-31
"D"	2-3	33-50
"D"	3-2	22-41
"D"	2-1	16-23
Wide Open Throttle		
"D"	1-2	24-53
"D"	2-3	65-82
"D"	3-2	60-77
"D"	2-1	23-39
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

MODEL PMA-AV (3.07 AXLE RATIO)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	8-15
"D" (1)	2-3	11-26
"D"	3-2	11-20
"D"	2-1	4-10
"1"	2-1	15-33
Part Throttle		
"D"	1-2	10-26
"D"	2-3	28-45
"D"	3-2	16-35
"D"	2-1	12-19
Wide Open Throttle		
"D"	1-2	23-52
"D"	2-3	57-74
"D"	3-2	51-68
"D"	2-1	22-38
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

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AUTO TRANS OVERHAUL - FORD ATX/FLC AUTOMATIC TRANSMISSIONS Ford ATX/FLC

MODEL PMA-BL (3.26 AXLE RATIO)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	7-14
"D" (1)	2-3	11-26
"D"	3-2	11-20
"D"	2-1	4-10
"1"	2-1	13-31
Part Throttle		
"D"	1-2	10-26
"D"	2-3	28-45
"D"	3-2	15-34
"D"	2-1	12-19
Wide Open Throttle		
"D"	1-2	23-52
"D"	2-3	57-74
"D"	3-2	51-68
"D"	2-1	22-38
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

MODEL PMA-BK (3.26 AXLE RATIO)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	9-16
"D" (1)	2-3	14-29
"D"	3-2	14-23
"D"	2-1	8-14
"1"	2-1	20-38
Part Throttle		
"D"	1-2	12-28
"D"	2-3	26-43
"D"	3-2	15-34
"D"	2-1	14-21
Wide Open Throttle		
"D"	1-2	22-51
"D"	2-3	55-72
"D"	3-2	50-67
"D"	2-1	23-39
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

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MODEL PMA-BD (3.07 AXLE RATIO)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	7-14
"D" (1)	2-3	11-26
"D"	3-2	11-20
"D"	2-1	4-10
"1"	2-1	13-31
Part Throttle		
"D"	1-2	10-26
"D"	2-3	28-45
"D"	3-2	15-34
"D"	2-1	12-19
Wide Open Throttle		
"D"	1-2	23-52
"D"	2-3	57-74
"D"	3-2	51-68
"D"	2-1	22-38
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

MODEL PMA-AW (3.09 AXLE RATIO)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	7-14
"D" (1)	2-3	11-26
"D"	3-2	11-20
"D"	2-1	4-10
"1"	2-1	13-31
Part Throttle		
"D"	1-2	10-26
"D"	2-3	28-45
"D"	3-2	15-34
"D"	2-1	12-19
Wide Open Throttle		
"D"	1-2	22-52
"D"	2-3	57-74
"D"	3-2	51-68
"D"	2-1	22-38
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

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MODEL PMA-BM (3.07 AXLE RATIO P185/70R14 TIRES)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	10-17
"D" (1)	2-3	13-18
"D"	3-2	12-21
"D"	2-1	4-10
"1"	2-1	13-31
Part Throttle		
"D"	1-2	12-28
"D"	2-3	30-47
"D"	3-2	19-38
"D"	2-1	13-20
Wide Open Throttle		
"D"	1-2	25-54
"D"	2-3	61-78
"D"	3-2	55-72
"D"	2-1	23-39
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

MODEL PMA-BN (3.09 AXLE RATIO P185/70R14 TIRES)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	10-17
"D" (1)	2-3	13-18
"D"	3-2	12-21
"D"	2-1	4-10
"1"	2-1	13-31
Part Throttle		
"D"	1-2	12-28
"D"	2-3	30-47
"D"	3-2	19-38
"D"	2-1	13-20
Wide Open Throttle		
"D"	1-2	25-54
"D"	2-3	61-78
"D"	3-2	51-68
"D"	2-1	23-39
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

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MODEL PMA-BJ (3.07 AXLE RATIO P185/70R14 TIRES)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	10-17
"D" (1)	2-3	13-18
"D"	3-2	12-21
"D"	2-1	4-10
"1"	2-1	15-33
Part Throttle		
"D"	1-2	12-28
"D"	2-3	30-47
"D"	3-2	19-38
"D"	2-1	13-20
Wide Open Throttle		
"D"	1-2	25-54
"D"	2-3	61-78
"D"	3-2	55-72
"D"	2-1	23-39
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

MODEL PMA-BT (3.26 AXLE RATIO P195/70R14 TIRES)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	10-17
"D" (1)	2-3	14-29
"D"	3-2	14-23
"D"	2-1	8-14
"1"	2-1	20-38
Part Throttle		
"D"	1-2	13-29
"D"	2-3	27-44
"D"	3-2	17-36
"D"	2-1	14-21
Wide Open Throttle		
"D"	1-2	24-53
"D"	2-3	58-75
"D"	3-2	53-70
"D"	2-1	23-39
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

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AUTO TRANS OVERHAUL - FORD ATX/FLC AUTOMATIC TRANSMISSIONS Ford ATX/FLC

MODEL PMA-BX (3.07 AXLE RATIO P185/70R14 TIRES)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	10-17
"D" (1)	2-3	13-18
"D"	3-2	12-21
"D"	2-1	4-10
"1"	2-1	15-33
Part Throttle		
"D"	1-2	12-28
"D"	2-3	30-47
"D"	3-2	19-38
"D"	2-1	13-20
Wide Open Throttle		
"D"	1-2	25-54
"D"	2-3	61-78
"D"	3-2	51-68
"D"	2-1	23-39
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

MODELS PMA-CR (3.26 AXLE P185/70R14 TIRES) & PMA-CP AWD (3.26 AXLE)

Application	Shift	Speed Range/MPH
Closed Throttle		
"D" (1)	1-2	10-17
"D" (1)	2-3	13-18
"D"	3-2	12-21
"D"	2-1	4-10
"1"	2-1	15-33
Part Throttle		
"D"	1-2	12-28
"D"	2-3	30-47
"D"	3-2	19-38
"D"	2-1	13-20
Wide Open Throttle		
"D"	1-2	25-54
"D"	2-3	61-78
"D"	3-2	55-72
"D"	2-1	23-39
(1) Speed Range/MPH is taken at 10-degree throttle opening.		

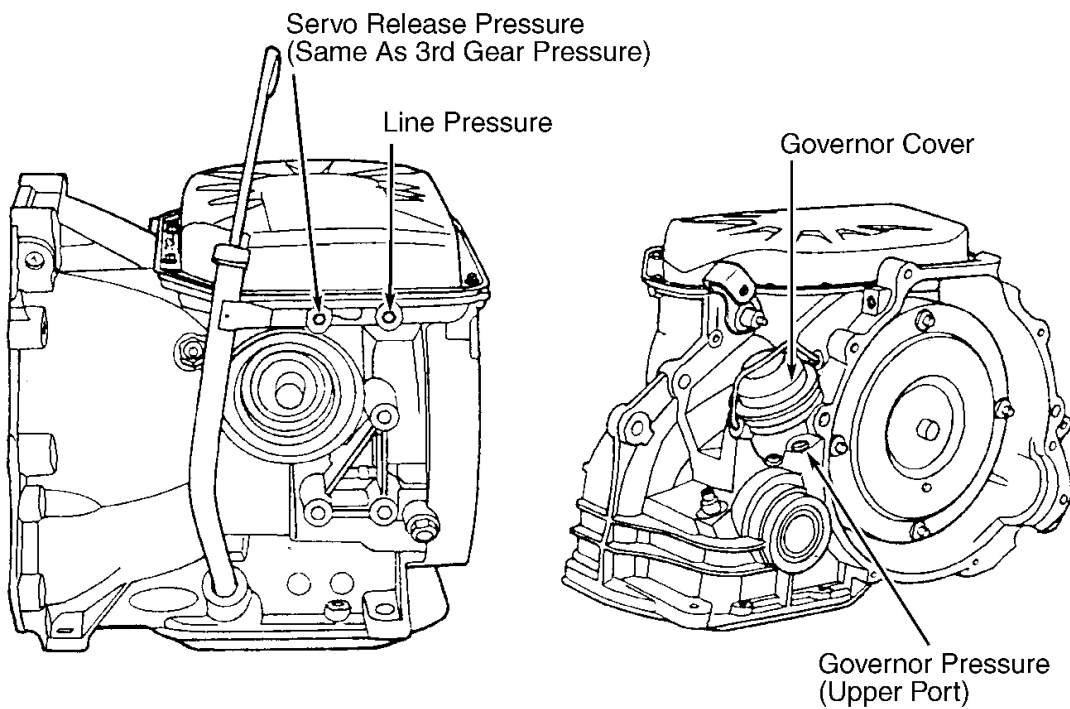
GOVERNOR CHECK

Accelerate vehicle at full throttle to 30-40 MPH. Then back off throttle completely. If governor is functioning properly, transaxle will upshift to 3rd gear.

LINE PRESSURE TEST

NOTE: Manufacturer does not provide complete line pressure specifications for 1991-92 models. The following procedures and specifications are for 1991 models only but may be used to provide an approximate value to help diagnose band application and component operation.

1. Connect a 0-300 psi (0-2069 kPa) pressure gauge to line pressure test port on transaxle case. See **Fig. 2**. Run engine until normal operating temperature is reached.
2. Apply service and parking brakes. Check line pressure in all selector lever positions with engine at idle and then with engine at wide open throttle. Pressure should be as specified. See the appropriate **LINE PRESSURE SPECIFICATIONS**.



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Fig. 2: Identifying Line Pressure Test Port
Courtesy of FORD MOTOR CO.

LINE PRESSURE SPECIFICATIONS

1990 Ford Escort GT

AUTO TRANS OVERHAUL - FORD ATX/FLC AUTOMATIC TRANSMISSIONS Ford ATX/FLC

1988 LINE PRESSURE SPECIFICATIONS

Application & Shift Range	Idle psi	WOT Stall psi
PMA		
"D", "2", "P" & "N"	49-61	93-109
"R"	50-96	202-254
"1"	63-73	106-146
PMB		
"D", "2", "P" & "N"	49-61	93-104
"R"	59-96	205-254
"1"	63-73	106-146
PMA-BJ, BH, RN, BX & BT		
"D", "2", "P" & "N"	47-59	98-114
"R"	61-97	196-249
"1"	63-73	106-146

1989-90 LINE PRESSURE SPECIFICATIONS

Application & Shift Range	Idle psi (kPa)	WOT Stall psi (kPa)
1.9L PMA-CC, PMB-AB		
"D", "2", "P" & "N"	45-56 (310-386)	87-103 (600-710)
"R"	50-96 (344-662)	202-254 (1392-1751)
"1"	53-67 (365-462)	114-135 (786-931)
2.3L PMA-BJ, BH, RN, BX, BT		
"D", "2", "P" & "N"	41-54 (282-372)	94-110 (648-758)
"R"	75-111 (517-765)	236-288 (1627-1986)
"1"	57-70 (393-482)	165-195 (1138-1345)
2.5L PMA-CE		
"D", "2", "P" & "N"	41-54 (282-372)	94-110 (648-758)
"R"	46-82 (317-565)	197-249 (1358-1717)
"1"	57-70 (393-482)	129-159 (889-1096)

1991-92 LINE PRESSURE SPECIFICATIONS

Application & Gear	psi (kPa) @ Idle	psi (kPa) @ WOT Stall
2.3L PMA-BJ,BM,BN,BX,CR,CP		

1990 Ford Escort GT

AUTO TRANS OVERHAUL - FORD ATX/FLC AUTOMATIC TRANSMISSIONS Ford ATX/FLC

"D", "2", "P" & "N"	39-53 (269-365)	94-110 (648-758)
"R"	75-111 (517-765)	235-298 (1620-2055)
"1"	57-70 (393-483)	165-195 (1138-1345)
2.5L PMA-BT		
"D", "2", "P" & "N"	41-54 (282-372)	94-110 (648-758)
"R"	46-82 (317-565)	197-249 (1358-1717)
"1"	57-70 (393-482)	129-159 (889-1096)

LINE PRESSURE TEST RESULTS**Low At Idle In All Ranges**

Check engine idle. Check for low fluid level, restricted intake screen or filter, loose valve body or regulator-to-case bolts, loose oil tubes, excessive leakage in oil pump, case, valve body or sticking control pressure regulator valve.

High At Idle In All Ranges

Check throttle valve or control rod adjustment, and T.V. linkage return spring, or sticking regulator boost valve (s).

Low In "P" Or "N"

Faulty valve body.

Low In "D"

Faulty servo or valve body.

Low In "2"

Faulty valve body and/or intermediate servo.

Low In "1"

Faulty direct clutch and/or valve body.

Low In "R"

Faulty direct clutch and/or reverse clutch. Faulty valve body.

1990 Ford Escort GT

AUTO TRANS OVERHAUL - FORD ATX/FLC AUTOMATIC TRANSMISSIONS Ford ATX/FLC

STALL SPEED TEST

1. Start engine and allow it to reach normal operating temperature. Apply both parking and service brakes. Stall test is made in all Drive ranges and Reverse at WOT throttle position.
2. Stall speed test checks engine performance, converter operation or installation and holding ability of the direct clutch, reverse clutch and low-intermediate band brake and gear train one-way clutch. See appropriate **STALL SPEED SPECIFICATIONS** .

CAUTION: While performing this test, DO NOT hold throttle open for more than 5 seconds at a time.

3. After test, move gear selector lever to "N" and run engine at 1000 RPM for about 15 seconds to cool converter before making next test. If engine speed recorded by tachometer exceeds maximum limits given in specifications, RELEASE ACCELERATOR IMMEDIATELY because clutch or band slippage is indicated. See **STALL SPEED TEST RESULTS** .

STALL SPEED SPECIFICATIONS**1986-87 STALL SPEED SPECIFICATIONS**

Application	Stall RPM
Escort, EXP & Lynx	2949-3460
Taurus & Sable	2949-3460
Tempo & Topaz	
2WD 2.3L HSC CFI	1782-2128
4WD 2.3L HSC CFI	2062-2444
Tempo & Topaz 2.3L HSC IV	2062-2444

1988-90 STALL SPEED SPECIFICATIONS

Application	Stall RPM
Escort 1.9L CFI	2996-3460
Tempo & Topaz	
2WD 2.3L HSC CFI	2067-2450
4WD 2.3L HSC CFI	2086-2483
Tempo & Topaz 2.3L HSC IV	2067-2450

1991-92 STALL SPEED SPECIFICATIONS

Application	Stall RPM
Taurus 2.5L HSC CFI	2472-2832
Tempo & Topaz	
FWD 2.3L Base	2155-2501
AWD 2.3L HSC, EFI	2119-2547
2.3L HSC IV	2062-2444

STALL SPEED TEST RESULTS**High Stall Speeds Or Slip**

- In "D" or "2" position - Check turbine shaft one-way clutch.
- In "D", "2" and "1" position - Check low-intermediate band or servo.
- In "R" position - Check reverse clutch.
- In all ranges - Check T.V. control adjustment and perform control pressure test.

Low Stall Speeds

- Check engine tune. If tune is okay, go to next step.
- Bench test torque converter for reactor one-way clutch slippage. See **TORQUE CONVERTER REACTOR ONE-WAY CLUTCH CHECK**.

AIR PRESSURE TEST PROCEDURE

1. A "No Drive" condition can exist even with correct transaxle fluid pressure, because of inoperative clutches or band. Erratic shifts could be caused by a stuck governor valve. Inoperative units can be located through a series of checks by substituting air pressure for fluid pressure to determine location of malfunction.
2. To make air pressure checks, loosen valve body cover bolts. Remove cover and valve body assembly. Install Special Adapter Plate (T82P-7006-B) in place of valve body. Inoperative units can be located by applying air pressure to transaxle case passages, through adapter plate, leading to clutches, servo and governor. See **Fig. 3**.

NOTE: **Air pressure test adapter plate should be installed with a new valve body gasket. Tighten attaching bolts to 80-97 INCH lbs. (9-11 N.m).**

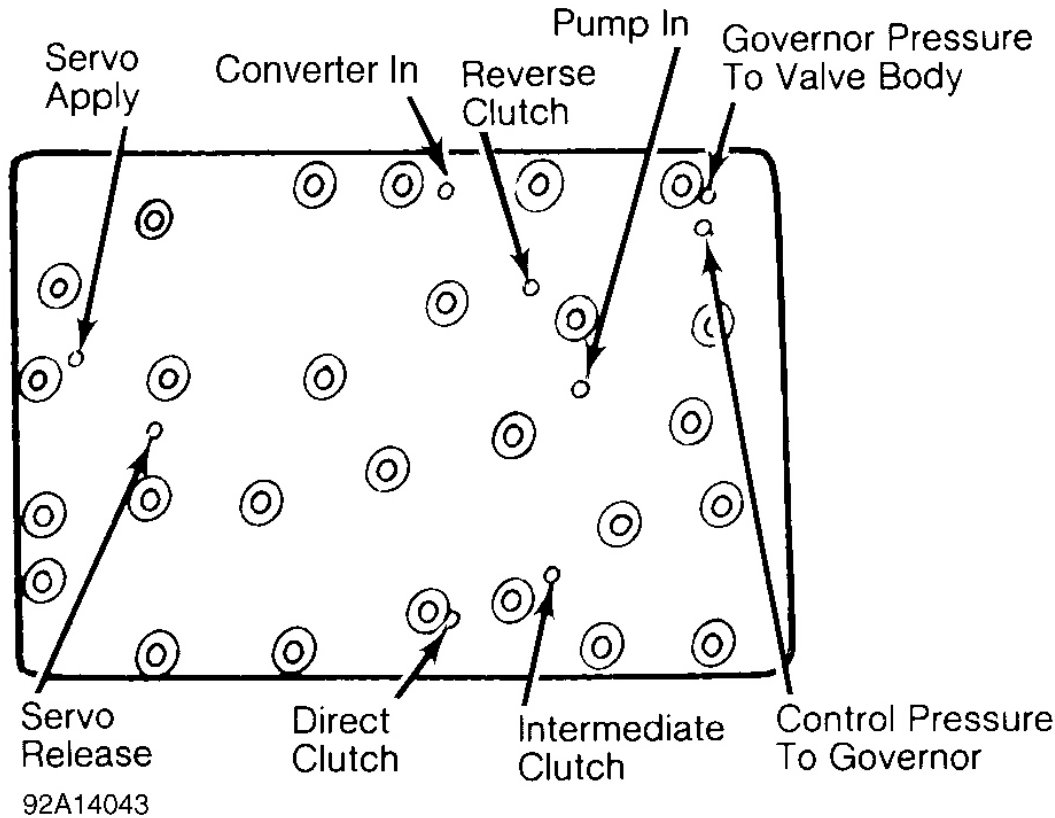


Fig. 3: Identifying Air Pressure Test Apply Ports on Adapter Plate
 Courtesy of FORD MOTOR CO.

AIR PRESSURE TESTS

NOTE: See AIR PRESSURE TEST PROCEDURE before performing these tests.

Band Apply Servo

Apply air pressure to servo apply passage. Band should apply. A dull thud should be heard when air pressure is removed, allowing servo piston to return to release position.

Direct Clutch

Apply air pressure to direct clutch apply passage. A dull thud can be heard or movement of piston can be felt as piston is applied. If direct Clutch seals are leaking, a hissing noise will be heard.

Intermediate Clutch

Apply air pressure to intermediate clutch apply passage. A dull thud can be heard or movement of piston can be

felt on case as piston is applied. If intermediate clutch seals are leaking, a hissing noise will be heard.

Reverse Clutch

Apply air pressure to reverse clutch apply passage. A dull thud can be heard or movement of piston can be felt on case as piston is applied. If reverse clutch seals are leaking, a hissing noise will be heard.

Converter In

This passage can only be checked for blockage. If passage holds air pressure, remove adapter plate and check for an obstruction or damage.

Control Pressure-To-Governor

Remove governor cover. Apply air pressure to control pressure-to-governor apply passage. Watch for movement of governor valve.

Governor Pressure-To-Valve Body

This passage can only be checked for blockage. If passage holds air pressure, remove adapter plate and check for an obstruction or damage.

Pump In (Bench Test)

With transaxle removed from vehicle and converter removed, apply air pressure to pump in apply passage. Rotation of pump gears should be heard when air pressure is applied.

NOTE: PUMP IN check is normally performed during assembly of an overhauled transaxle.

TORQUE CONVERTER**Torque Converter Leakage Check**

With torque converter removed from transaxle, check for leakage using Leak Tester (Rotunda 021-00054).

Torque Converter Stator-To-Impeller Interference Check

Position stator support assembly on bench. Splined end of stator shaft should face upward. Place converter on support. Splines on one-way clutch inner race should engage with mating splines on stator support. Holding stator support from rotating, turn converter counterclockwise. If converter does not turn freely, replace converter.

Torque Converter Stator-To-Turbine Interference Check

Place converter on bench with front side facing down. Install stator support, engaging splines. Install turbine shaft. Ensure splines engage with turbine hub. While holding stator support, rotate turbine with turbine shaft. If turbine does not rotate freely in both directions, replace converter. Ensure converter pilot, in crankshaft, is okay.

Torque Converter Reactor One-Way Clutch Check

Position Holding Wire (T81P-7902-A) in thrust washer slot. Install Adapter (T81P-7902-B) in reactor spline. Rotate adapter counterclockwise, using a torque wrench. If adapter rotates with less than 10 ft. lbs. (14 N.m). applied, replace converter.

Torque Converter End-Play Check

Position End Play Checking Device (T81P-7902-D) in converter hub. Tighten nut on device. Position a dial indicator on device. Position dial indicator pointer on converter shell. Lift up on device handles. If dial indicator reading exceeds .040" (1.02 mm), replace converter.

REMOVAL & INSTALLATION

See appropriate AUTOMATIC TRANSMISSION REMOVAL article in TRANSMISSION SERVICING.

TRANSAXLE DISASSEMBLY

1. Mount transaxle in a holding stand. Pull torque converter from case. Remove oil pump drive shaft. Remove converter turbine sleeve (if equipped). Remove filler tube from case. Remove governor cover retainer from case. Pry off cover and remove governor from case. Remove oil pan. Remove oil filter and seal.
2. Remove differential bearing retainer-to-case attaching bolts. Pry retainer from case. Remove differential bearing spacer shims located under bearing retainer. Remove differential assembly from transaxle case.
3. Remove valve body cover bolts and cover. Disconnect and remove throttle lever return spring. Remove valve body attaching bolts. Remove main oil pressure regulator baffle plate. Remove transaxle control baffle plate. Remove detent spring and roller assembly. Disengage "Z" link from manual valve. Remove valve body assembly.

NOTE: **The 7 main oil pressure regulator baffle plate attaching bolts (Nos. 1, 5, 6, 7, 8, 17 and 18 in Fig. 19) are longer than the other valve body attaching bolts.**

4. Lift governor screen from bore in case (located under valve body). Pry speedometer driven gear retaining pin partially out of case. Remove pin using side cutters. Using a hammer handle, tap driven gear from case.
5. Remove oil pump attaching bolts and washers. Remove pump from case using a slide hammer puller. Remove selective thrust washer from under pump body, if equipped. Remove and discard pump gasket. Remove No. 11 thrust bearing (needle) from top of intermediate clutch. Remove clutch assembly from case. See **Fig. 20** and **Fig. 21** .

NOTE: **For thrust washer application, see Fig. 20 .**

6. Remove No. 10 thrust bearing (needle) from direct clutch. Remove direct clutch from case. Remove intermediate clutch hub and ring gear assembly. Remove No. 7 thrust washer from planetary assembly.
7. Remove large snap ring securing reverse clutch. Remove reverse clutch pack from case. Remove

planetary assembly and No. 5 thrust washer from case. Remove reverse clutch return springs and holder assembly. Remove reverse clutch piston. Pry reverse clutch drum up to loosen and remove from case.

8. Using Servo Remover/Installer (T81P-70027-A), compress servo and remove retaining snap ring. Slowly release spring pressure. Remove servo remover/installer and servo assembly. Remove low-intermediate band.
9. Remove sun gear and drum assembly from case. Remove No. 4 thrust washer from final drive housing. Remove 5 final drive housing retaining bolts. Using a screwdriver, pry housing from idler gear shaft and remove from case. DO NOT pry downward against idler gear teeth or damage will result.

NOTE: Discard final drive housing bolts. Replace with new bolts and use Loctite on threads.

10. Remove No. 3 thrust bearing (needle) from input gear. Remove input gear. Remove input gear caged needle bearing No. 2 and No. 1 thrust bearing (needle).
11. Position a 12-mm Allen wrench in idler gear shaft and allow wrench to catch on side of case. With wrench holding idler gear shaft, remove nut from rear of shaft using a 32-mm, 12 point socket. Tap idler gear shaft with a hammer handle to loosen "O" ring. Remove shaft from case.
12. Remove reactor support from case if damaged or unserviceable. Reactor support is pressed into case. Remove with Puller (T81P70363-A).

COMPONENT DISASSEMBLY & REASSEMBLY

OIL PUMP

Disassembly

1. Remove No. 12 selective thrust washer and oil seal rings from clutch support. Remove pump-to-case oil seal ring from outside diameter of clutch support. See **Fig. 4**.
2. Remove 5 clutch support-to-pump body attaching bolts. Separate support from pump body. Remove insert from pump drive gear. Remove driven gear and drive gear from pump body.

Reassembly

To reassemble, reverse disassembly procedure. Ensure ends of angle-cut oil seal rings overlap properly. See **Fig. 4**.

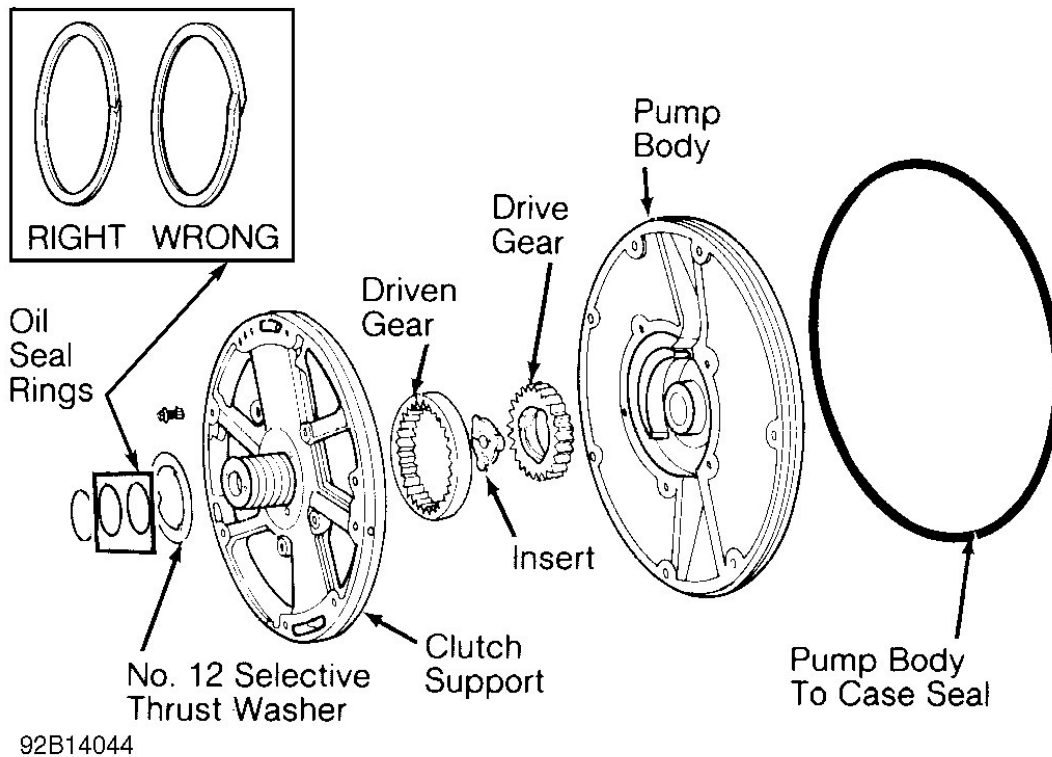


Fig. 4: Exploded View of Oil Pump
Courtesy of FORD MOTOR CO.

INTERMEDIATE CLUTCH

Disassembly

1. Remove intermediate shaft snap ring. Pull shaft from intermediate clutch drum. If damaged, remove snap ring from intermediate shaft. See **Fig. 5**.
2. Remove clutch pack retaining snap ring and withdraw pressure plate, wave spring, and clutch pack. Remove seal rings from clutch drum hub.
3. Using Clutch Spring Compressor (T81P-70222-A), compress clutch return springs and remove retaining snap ring. Remove compressor and lift return spring retainer and spring assembly from clutch drum.
4. Remove clutch piston from drum. Remove inner piston seal from clutch drum and outer piston seal from clutch piston.

Cleaning & Inspection

1. Inspect clutch drum thrust surfaces, piston bore, and clutch plate serrations for scores or burrs. Minor scores or burrs may be removed with crocus cloth. Replace drum if it is badly scored or damaged.
2. Check fluid passage in clutch drum for obstructions. Clean out all passages. Inspect clutch piston for

scores and replace if necessary. Inspect piston check ball for freedom of movement and proper seating.

3. Inspect clutch return springs for distortion and cracks. Inspect friction plates, steel plates and pressure plate for worn or scored bearing surfaces. Replace all parts that are deeply scored.
4. Check clutch plates for flatness and fit on clutch drum hub serrations. Replace any plate that does not slide freely on serrations or that is not flat.
5. Check clutch hub thrust surfaces for scores and clutch hub splines for wear. Inspect shaft bearing surfaces for scoring. Check shaft splines for wear.

Reassembly

1. Inspect piston check ball and ensure ball is free in cage. Install outer piston seal on piston with lip facing up and inner piston seal in clutch drum with lip facing down. Apply a light film of petroleum jelly to piston seals, drum seal area and piston inner seal area.
2. Install clutch piston into drum by pushing down on piston while rotating. Position return spring and retainer assembly into drum. Compress return springs and install retaining snap ring.
3. Install angle-cut seal rings on clutch drum hub. Ensure seals overlap at the bevel edge. Install wave spring into drum. Install clutch pack into drum starting with a steel plate. Alternate friction and steel plates until correct number of plates are installed. See **CLUTCH PLATE USAGE** . Install pressure plate and clutch pack retaining snap ring.
4. Use feeler gauge to measure clearance between clutch pack retaining snap ring and pressure plate with pressure plate held downward. Take 2 readings, 180 degrees apart and average readings. Ensure clearance is .030-.044" (.76-1.12 mm).
5. If not within specifications, selective snap rings are available in various sizes. See **INTERMEDIATE CLUTCH SNAP RINGS** . Install correct size snap ring and recheck clearance.
6. If removed, install stop ring on intermediate shaft. Install shaft into clutch drum. Install intermediate shaft retaining snap ring.

INTERMEDIATE CLUTCH SNAP RINGS

Part No.	(1) Thickness
E1FZ7D483-D	.050" (1.27 mm)
E1FZ7D483-E	.061" (1.55 mm)
E1FZ7D483-F	.072" (1.83 mm)
(1) Snap ring thicknesses have .002" (.05 mm) tolerance.	

CLUTCH PLATE USAGE

Application & Clutch	Friction Plates	Steel Plates
Direct Clutch (1)	(2) 3	(2) 3
Intermediate Clutch	3	3
(1) With cushion spring.		
(2) Number of plates may vary due to model and application.		

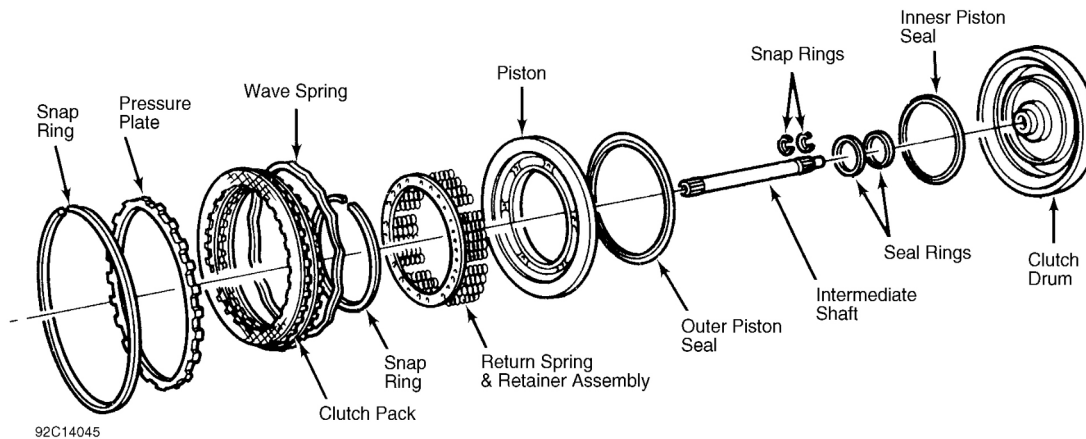


Fig. 5: Exploded View of Intermediate Clutch Assembly
Courtesy of FORD MOTOR CO.

DIRECT CLUTCH

Disassembly

1. Remove sun gear/one-way clutch race assembly. Remove No. 8 thrust washer. Remove one-way clutch. See **Fig. 6**.
2. Remove clutch pack retaining snap ring. Remove pressure plate, clutch pack, and wave spring from clutch drum. Remove No. 9 thrust bearing. Note number of friction plates in clutch pack during disassembly for reassembly purposes. Using Compressor (T81P-70235-A), compress piston return spring retainer. Remove retaining snap ring. Remove tool and piston return spring retainer.
3. Remove piston from clutch drum. Remove piston seals from clutch drum and piston.

Inspection

See CLEANING & INSPECTION under **INTERMEDIATE CLUTCH**.

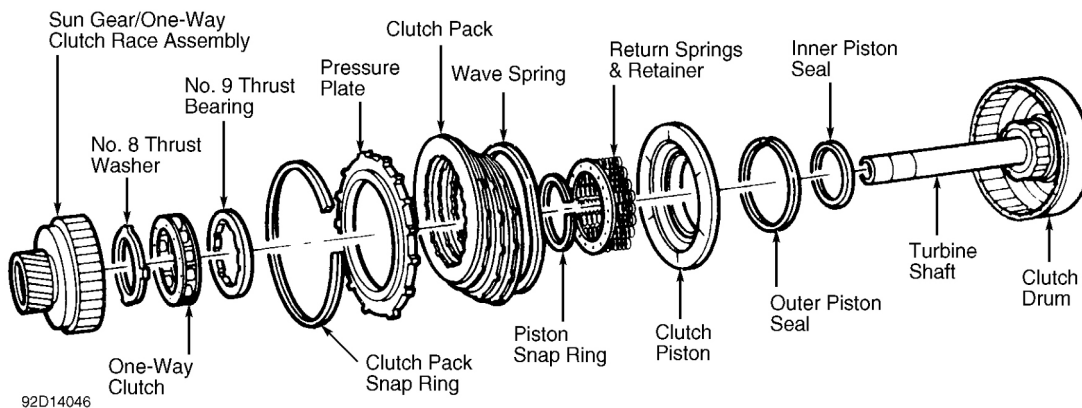


Fig. 6: Exploded View of Direct Clutch Assembly
 Courtesy of FORD MOTOR CO.

Reassembly

1. Inspect clutch drum check ball. Ensure ball is free in cage. Install seal on clutch drum with seal lip facing down. Install piston seal on piston with seal lip facing up. Apply a light film of petroleum jelly to piston seals. Install piston into drum using a rotating motion while applying downward pressure.
2. Position return springs, retainer and retaining snap ring in clutch drum. Compress retainer and install snap ring in groove. Install thrust bearing No. 9 on top of return spring retainer. See **Fig. 6**.
3. Install wave spring. Install clutch pack into drum starting with a steel clutch plate and alternating friction clutch plates and steel plates until correct number of clutch plates have been installed. See **CLUTCH PLATE USAGE** table. Install pressure plate and clutch pack snap ring.
4. Install one-way clutch over turbine shaft. Ensure one-way clutch is positioned correctly. See **Fig. 7**. Install No. 8 thrust washer into drum. See **Fig. 6**. Ensure that tabs of washer are facing down against shoulder of one-way clutch inner race. Install clutch pack retaining snap ring.
5. Using feeler gauge or dial indicator, measure clearance between clutch pack retaining snap ring and pressure plate with pressure plate held down. Take 2 measurements 180 degrees apart. Ensure direct clutch clearance is .031-.047" (.79-1.20 mm) for 3 friction plates and .040-.056" (1.01-1.43 mm) for 4 friction plates.

NOTE: Use same number of friction plates noted during disassembly.

6. If clearance is not within specifications, selective snap rings are available in various sizes. See **DIRECT CLUTCH SNAP RINGS**. Install correct size snap ring and recheck clearance.
7. Install sun gear/one-way clutch outer race assembly over turbine shaft and into clutch drum. Check operation of one-way clutch. When properly assembled, the one-way clutch allows sun gear/outer race assembly to rotate in one direction only.

DIRECT CLUTCH SNAP RINGS

Part No.	(1) Thickness
E1FZ7D483-A	.052" (1.32 mm)
E1FZ7D483-B	.064" (1.63 mm)
E1FZ7D483-C	.077" (1.96 mm)
(1) Snap ring thicknesses have .002" (.05 mm) tolerance.	

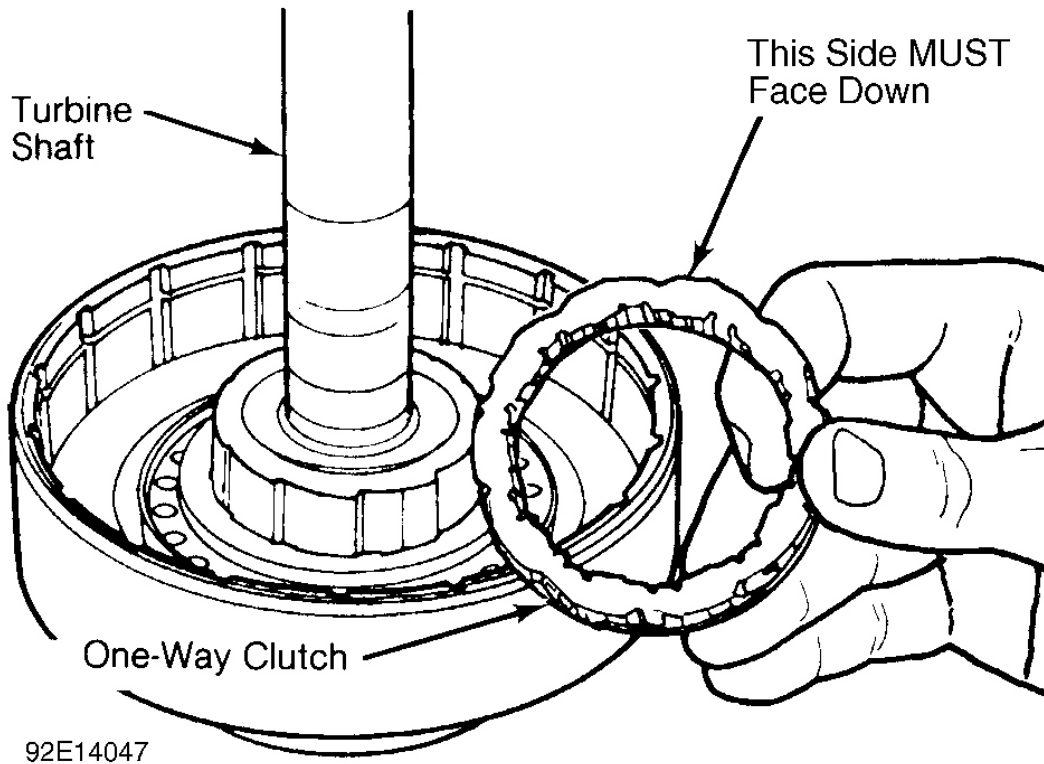


Fig. 7: Installing One-Way Clutch
Courtesy of FORD MOTOR CO.

REVERSE CLUTCH

NOTE: Reverse clutch was disassembled under TRANSAXLE DISASSEMBLY and will be reassembled during TRANSAXLE REASSEMBLY. The following procedure is for replacing piston seals and inspecting components.

Piston Seal Replacement

Remove seals from clutch cylinder and clutch piston. Install new seal (large) on clutch cylinder with seal lips facing up. Install new inner seal (small) on piston with seal lip facing down. Install new outer seal on piston.

NOTE: Outer piston seal is square-cut and maybe installed in either direction.

Inspection

1. Inspect clutch piston bore and piston inner and outer bearing surfaces for scores. Check air bleed ball valve in piston for free movement. Check orifice for obstructions.
2. Check fluid passages for obstructions. All passages must be clean and free of obstructions. Inspect clutch

plates for wear, scoring and fit on clutch hub serrations. Replace all plates that are badly scored, worn, or DO NOT fit freely in hub serrations.

3. Inspect clutch pressure plate for scores on clutch plate bearing surface. Check clutch return springs for distortion or collapsed coils.

BAND APPLY SERVO

Disassembly

Remove piston return spring. Separate servo piston from cover. Remove piston rod circlip. Slide piston rod, cushion spring and spring retaining washer from piston. Remove seals from servo cover and piston. See **Fig. 8**.

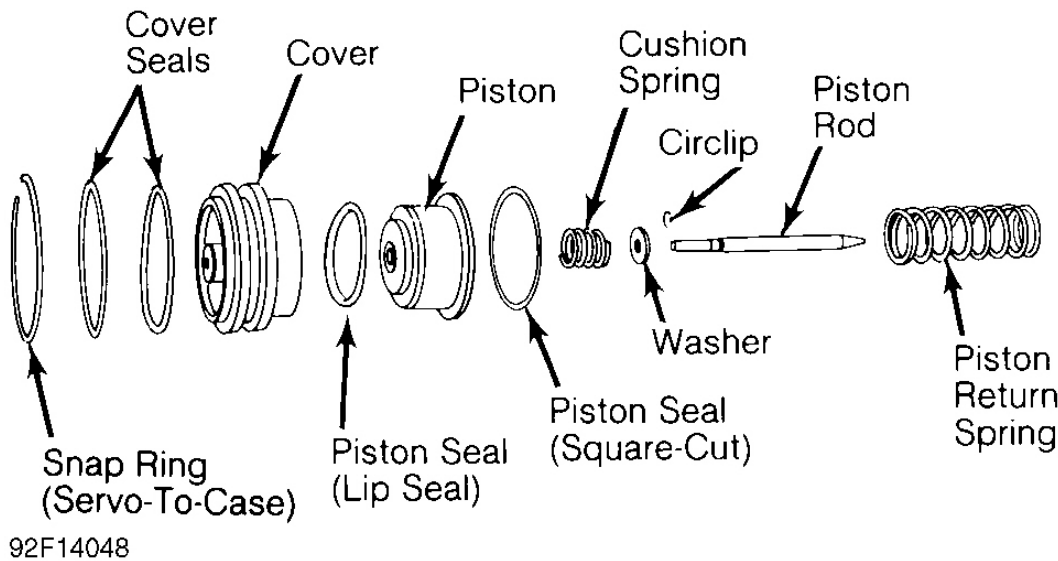


Fig. 8: Exploded View of Band Apply Servo
Courtesy of FORD MOTOR CO.

Inspection

1. Inspect servo body for cracks and piston bore for scores. Check fluid passages for obstructions. Inspect band and struts for distortion. Inspect band ends for cracks.
2. Inspect servo spring for distortion. Inspect band lining for excessive wear and bonding to metal band. Replace damaged seals.

Servo Travel Check

1. Servo travel check needs to be performed only if one of the following components has been replaced:
 - Transaxle Case
 - Band Assembly

- Drum And Sun Gear Assembly
 - Servo Piston Rod
 - Servo Piston
 - Band Anchor Strut
2. Install Servo Piston Selector (T81P-70023-A) and secure in case using servo cover retaining snap ring. Tighten gauge screw to 120 INCH lbs. (14 N.m). See **Fig. 9**.
 3. Mount a dial indicator and position indicator stylus through hole in gauge disc. Ensure stylus contacts servo piston. Zero dial indicator.
 4. Back off gauge screw until piston movement stops and read dial indicator. Amount of piston travel shown on indicator will determine piston rod length to install.
 5. If piston travel is .203-.247" (5.16-6.27 mm), correct piston rod is installed and no change is required. If travel is less than specifications, piston rod is too long and a shorter rod (more I.D. grooves) will have to be installed. If travel is more than specified, rod is too short and a longer rod (less grooves) will have to be installed.
 6. Select a new piston rod if necessary. Refer to the **SERVO PISTON ROD SELECTION**. Install selected rod and recheck servo travel.
 7. Clean and assemble servo piston without piston seals. Install Return Spring (T81P-70027-A) on piston rod and position piston in case.

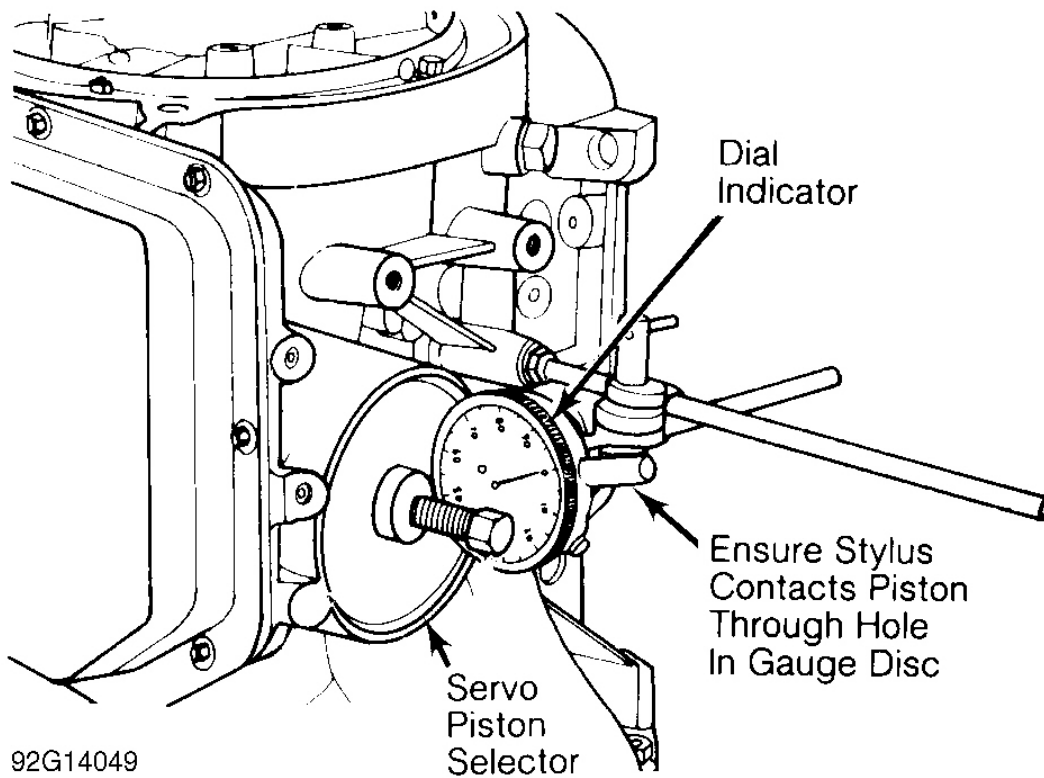


Fig. 9: Measuring Servo Piston Travel
 Courtesy of FORD MOTOR CO.

SERVO PISTON ROD SELECTION

Rod Length: In. (mm) ⁽¹⁾	Rod I.D.
6.313-6.324 (160.35-160.63)	No Grooves
6.289-6.300 (159.74-160.02)	1 Groove
6.265-6.276 (159.13-159.41)	2 Grooves
6.240-6.252 (158.50-158.80)	3 Grooves
6.189-6.216 (157.20-157.89)	4 Grooves
6.197-6.209 (157.40-157.71)	5 Grooves
(1) Measured from end of snap ring groove to end of rod.	

Reassembly

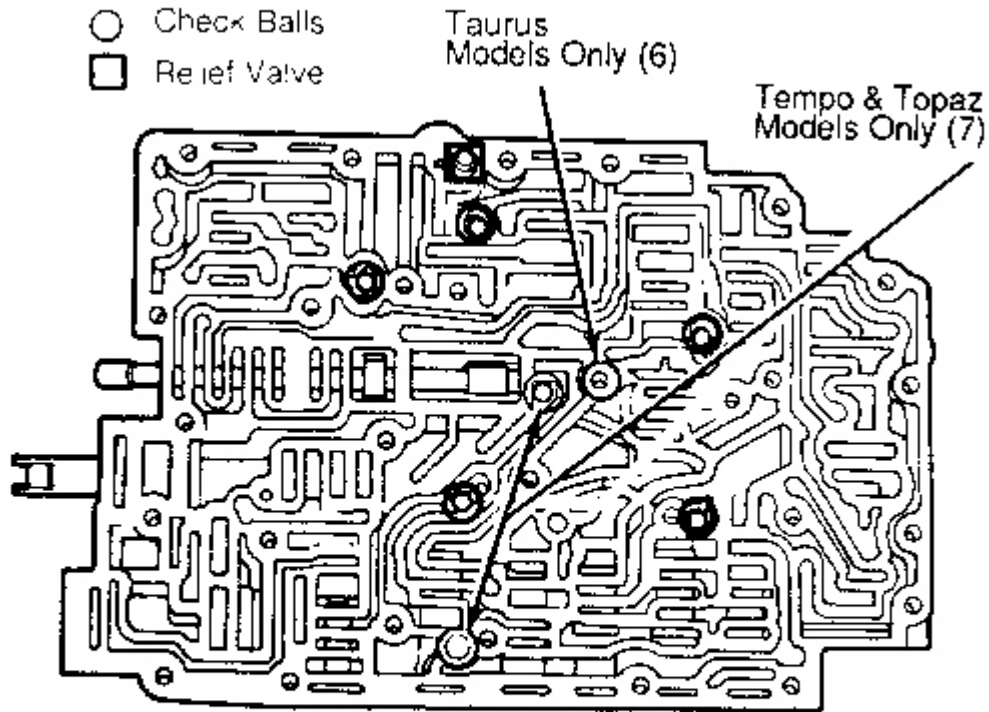
1. Position cushion spring retaining washer and cushion spring on piston rod. Install spring and rod assembly in servo piston. Compress cushion spring and install circlip on piston rod.
2. Install square-cut seal on piston. Install seals on servo cover. Lubricate piston seals with petroleum jelly. Install piston into cover. Install piston return spring on piston rod.

VALVE BODY ASSEMBLY

Disassembly

1. Remove 2 separator plate attaching screws and remove separator plate from valve body. Remove check balls and relief valve from valve body core passages. See **Fig. 10** .
2. Compress valve plugs and valves to remove retainers. Remove valves and springs. Mark components as necessary for reassembly. See **Fig. 11** .

CAUTION: DO NOT turn throttle valve adjusting screw and lock nut. Adjustment screw is set during manufacture and should not be altered.



92A14050

Fig. 10: Top View of Valve Body Check Balls & Relief Valve
 Courtesy of FORD MOTOR CO.

Cleaning & Inspection

1. Clean all parts thoroughly in clean solvent. Blow dry with compressed air.
2. Inspect all valve and plug bores for scores. Check all fluid passages for obstructions. Inspect all mating surfaces for burrs or distortion. Inspect all plugs and valves for burrs and scores.

NOTE: If necessary, use crocus cloth to polish valve and plugs. Avoid rounding off sharp edges of valves and plugs with cloth.

3. Inspect all springs for distortion. Check all valves and plugs for free movement in their bores. Valves and plugs, when dry, must fall from their own weight into their respective bores. Roll manual control valve on

a flat surface to check for bent condition.

Reassembly

1. Reverse disassembly procedure. Install 6 check balls and relief valves into valve body passages. See **Fig. 10**.
2. Use Alignment Pins (T80L-77100-A) when installing separator plate and gasket to ensure they are properly aligned with valve body. Tighten separator plate bolts to specification. Refer to the **TORQUE SPECIFICATIONS**.

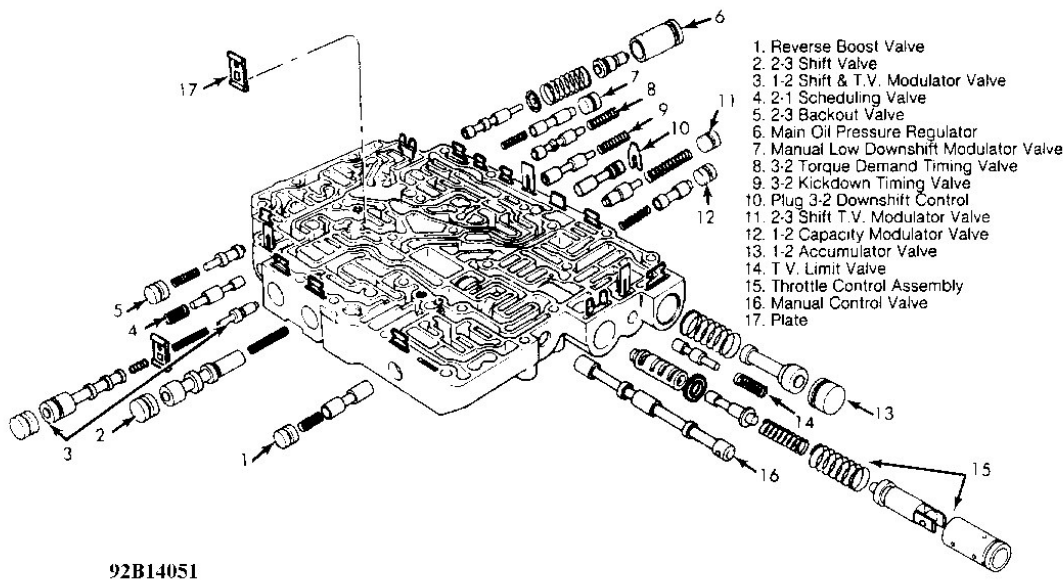


Fig. 11: Exploded View of Valve Body & Components
Courtesy of FORD MOTOR CO.

GOVERNOR OVERHAUL

Disassembly

Support governor on a vise and remove 3/32" roll pin securing gear to shaft. See **Fig. 21**. DO NOT place governor assembly or governor shaft in vise jaws. DO NOT damage ring lands. Clamp plastic gear in vise. Grip shaft firmly and twist and pull to remove gear from shaft.

Inspection

1. Inspect governor valve and bore for scores. Minor scores may be removed from valve with crocus cloth. Replace governor if valves or body are deeply scored.
2. Inspect governor screen for obstructions. Screen must be free of foreign material. If contaminated, clean thoroughly in solvent and blow dry with compressed air.

3. Check for free movement of valves in bores. Valves should slide freely of their own weight in bores when dry. Inspect fluid passages in valve body and counterweight for obstructions. All fluid passages must be clean.
4. Inspect governor drive gear and replace it if teeth are broken, chipped or excessively worn.

Reassembly

1. Align driven gear to shaft gear bore. Ensure driven gear is properly aligned and tap gear into position using a plastic mallet. Gear is in correct position when shoulder is seated against governor shaft.
2. Support governor on a non-machined surface. Using a drill press, align drill bit to prevent damaging governor shaft and drill a 1/8" hole through driven gear. Install NEW roll pin.

MANUAL & THROTTLE LINKAGE

Disassembly

1. Hold outer throttle lever stationary to prevent damage to throttle shaft cam and remove throttle valve outer lever nut and washer. Remove neutral safety switch. See **Fig. 12**.
2. Using needle nose pliers, remove manual lever retaining pin and parking pawl ratcheting spring. Remove nut attaching inner manual lever (detent) and parking pawl actuating lever to manual lever shaft.
3. Remove manual lever and shaft assembly. Remove throttle valve lever and components on throttle valve lever shaft. Remove parking pawl return spring. Using a screwdriver, pry manual lever shaft oil seal from case and throttle valve lever shaft seal from manual lever. Remove insulator from manual lever.

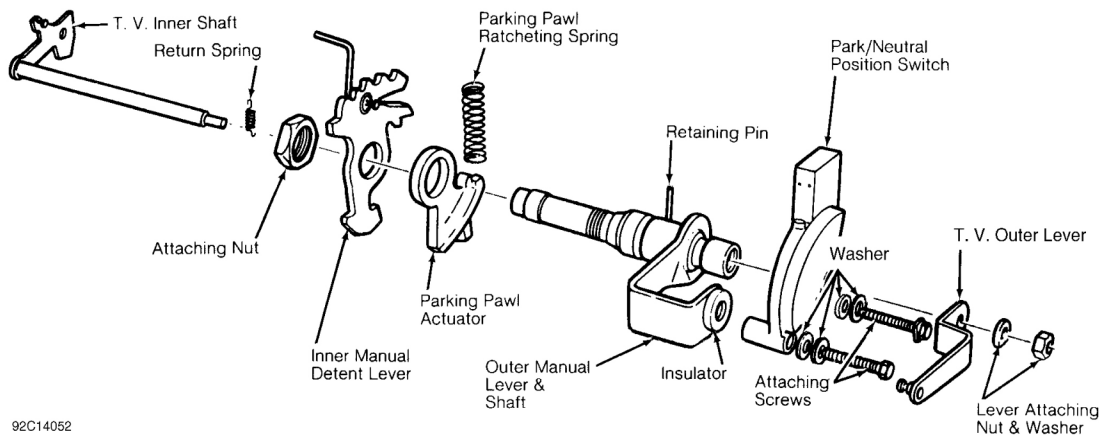


Fig. 12: Exploded View of Manual & Throttle Linkage Components
 Courtesy of FORD MOTOR CO.

Reassembly

1. Install new manual lever shaft seal in case. Install new seal on outer manual lever shaft. Install new insulator on outer manual lever. Install parking pawl return spring.
2. Install the following on T.V. inner shaft in this order: parking pawl actuator, inner manual detent lever,

inner attaching nut. Position T.V. inner shaft in case. Install outer manual lever and shaft.

3. Position parking pawl actuator and inner manual detent lever on manual shaft. Install attaching nut. Tighten nut to specification. Refer to the **TORQUE SPECIFICATIONS** . Install parking pawl ratcheting spring. Install manual lever retaining pin.
4. Install neutral safety switch in case. Install, but DO NOT tighten, attaching screws and washers. Adjust neutral safety switch. See appropriate AUTOMATIC TRANSMISSION SERVICING article in TRANSMISSION SERVICING. See the following list.
 - For 1981-85 Escort 1.6L EFI, see **TRANSMISSION SERVICING - A/T**
 - For 1982-85 Escort EXP 1.6L EFI, see **TRANSMISSION SERVICING - A/T**
 - For 1985-90 Escort 1.9L EFI, see **TRANSMISSION SERVICING - A/T**
 - For 1986-88 Escort EXP 1.9L EFI, see **TRANSMISSION SERVICING - A/T**
 - For 1988-90 Escort 1.9L HO EFI, see **TRANSMISSION SERVICING - A/T**
 - For 1982-83 LN7 1.6L EFI, see **TRANSMISSION SERVICING - A/T**
 - For 1981-85 Lynx 1.6L EFI, see **TRANSMISSION SERVICING - A/T**
 - For 1985-87 Lynx 1.9L EFI, see **TRANSMISSION SERVICING - A/T**
 - For 1986 Sable 2.5L EFI, see **TRANSMISSION SERVICING - A/T**
 - For 1984-92 Tempo & Topaz 2.3L EFI, see **TRANSMISSION SERVICING - A/T**
 - For 1986-91 Taurus 2.5L EFI, see **TRANSMISSION SERVICING - A/T**
5. Install T.V. outer lever. Tighten attaching nut to specification while holding lever stationary to prevent damage to throttle shaft cam.

REACTOR SUPPORT

Disassembly

Remove reactor support attaching bolts. Install Remover (T81P-70363-A). Install collar washer and nut on outside side of reactor support. Remove reactor support.

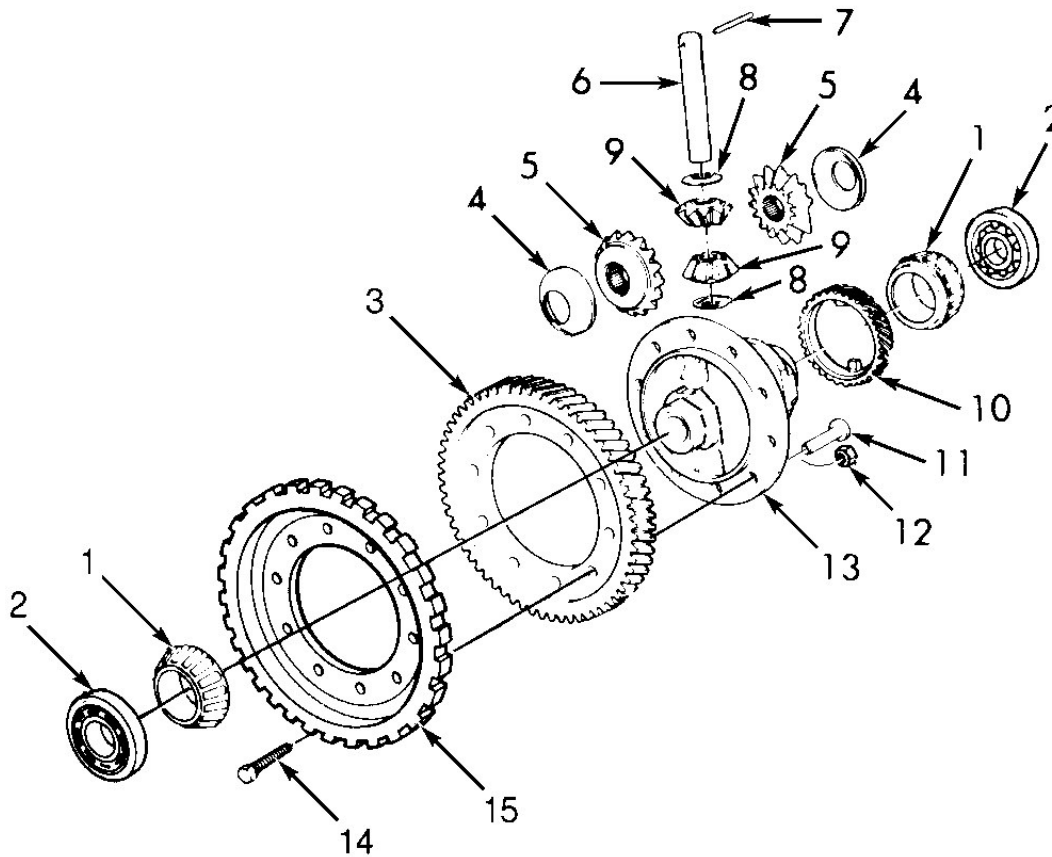
Reassembly

Install reactor support, using remover. Ensure slot in reactor support is aligned with oil return hole.

DIFFERENTIAL ASSEMBLY

Disassembly

1. Remove differential side bearings. Pull speedometer drive gear and shim from differential case. See **Fig. 13** . Remove side gears and thrust washers from differential case by rotating gears toward case windows.
2. Using a punch, drive out differential pinion gear shaft retaining pin. Remove pinion shaft, gears and thrust washers from case.
3. If necessary, remove ring gear from differential case by drilling preformed side of rivets with 5/16" drill bit. Remove heads of rivets with a chisel. Using a punch, drive remaining rivet shank from case and remove ring gear.



- | | |
|---------------------------|----------------------------|
| 1. Side Bearing (Tapered) | 9. Pinion Gears |
| 2. Side Bearing (Roller) | 10. Speedometer Drive Gear |
| 3. Ring Gear | 11. Rivet |
| 4. Thrust Washers | 12. Nut |
| 5. Side Gears | 13. Differential Case |
| 6. Pinion Gear Shaft | 14. Bolt |
| 7. Retaining Pin | 15. Parking Pawl Gear |
| 8. Thrust Washers | |

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Fig. 13: Exploded View of Differential Assembly
Courtesy of FORD MOTOR CO.

Cleaning & Inspection

1. Thoroughly clean all parts in solvent. DO NOT spin dry bearings using compressed air. Oil side bearings immediately after cleaning to prevent corrosion. Inspect parts for any major defect.

NOTE: When a scored or chipped gear is replaced, transaxle case must be

cleaned thoroughly to insure all chips are removed.

2. Examine pinion and side gears for scoring, excessive wear, nicks and chips. Worn, scored and damaged gears must be replaced.
3. Ensure differential case bearing journals are smooth. Inspect case bearing shoulders for damage caused by bearing removal. Check fit (free rotation) of side gears in their cavities.
4. Check bearing races for deep scores, galling or chipping. If races are not damaged, DO NOT remove from transaxle case or differential retainer. If races must be replaced, remove and install with appropriate tools.
5. Check side bearings for smooth rotation in races. Examine bearing roller ends for step wear. If inspection reveals either a damaged race or bearing, both parts must be replaced as they are a matched set.

Reassembly

1. To reassemble differential assembly, reverse disassembly procedure. Lubricate all thrust washers and thrust surfaces on gears and in case with automatic transmission fluid.
2. If removed, press ring gear onto differential case and attach to case with service replacement nuts and bolts. Install bolts with heads on parking pawl gear side of ring gear. Tighten bolts to specification. See **TORQUE SPECIFICATIONS** .
3. Install speedometer drive gear and shim. Ensure bevel on inside diameter of speedometer drive gear is facing differential case.

NOTE: **Differential side gears must be aligned in case. Use Shipping Plugs (T81P-1177-B) to maintain alignment. Failure to maintain alignment will make it impossible to install axle drive shafts through side gears.**

Differential Bearing Preload Adjustment

1. Differential bearing preload is set at factory and need not be checked or adjusted unless one of the following parts are replaced:
 - Transaxle Case
 - Differential Case
 - Differential Bearings
 - Differential Bearing Retainer
2. To adjust preload, install differential assembly into transaxle case. Place Shim Spacer (T83P-4451-BH) on differential ball bearing outer race. Thickness of spacer should be .054-.055" (1.37-1.40 mm).
3. Remove bearing retainer oil seal and "O" ring. Install bearing retainer in case. Install Differential Bearing Preload Shim Selector (T81P-4451-A) in differential retainer.
4. Ensure tool is centered in differential seal bore. Position gauge bar of selector tool across bearing retainer and install 2 attaching bolts finger tight. See **Fig. 14** .
5. Tighten center screw of gauge bar finger tight, then rotate differential assembly several times to seat bearings. Retighten screw finger tight.

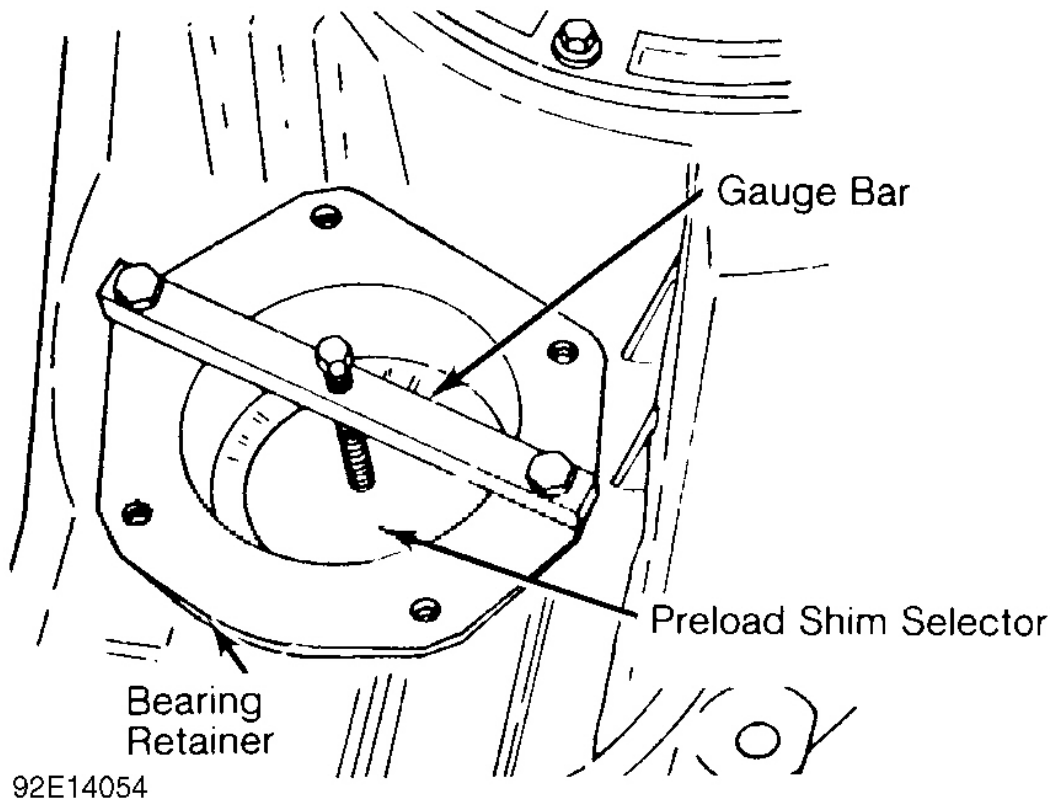


Fig. 14: Installing of Differential Bearing Preload Tool
 Courtesy of FORD MOTOR CO.

6. Using a feeler gauge, measure clearance between bearing retainer and transaxle case at 3 positions around retainer. Add the 3 measurements together and divide by 3 to obtain average of all measurements.
7. To determine shim needed for correct bearing preload, subtract average measurement obtained in step 6) from .053" (1.35 mm). Then add compressed gasket thickness of .011" (.28 mm). Result is thickness of required preload shim to install.

NOTE: Bearing preload shims are available in thickness of .012-.051" (.30-1.30 mm) in various increments. If calculations result in shim thickness which falls between 2 available thicknesses, always use thinner shim. See **BEARING PRELOAD SHIMS** table.

BEARING PRELOAD SHIMS

Part No.	Thickness
E3FZ4076-A	.012" (.30 mm)
E3FZ4076-B	.014" (.35 mm)
E3FZ4076-C	.016" (.40 mm)

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E3FZ4076-D	.018" (.45 mm)
E3FZ4076-E	.020" (.50 mm)
E3FZ4076-F	.022" (.55 mm)
E3FZ4076-G	.024" (.60 mm)
E3FZ4076-H	.026" (.65 mm)
E3FZ4076-J	.028" (.70 mm)
E3FZ4076-K	.030" (.75 mm)
E3FZ4076-L	.031" (.80 mm)
E3FZ4076-M	.033" (.85 mm)
E3FZ4076-N	.035" (.90 mm)
E3FZ4076-P	.037" (.95 mm)
E3FZ4076-R	.039" (1.00 mm)
E3FZ4076-S	.041" (1.05 mm)
E3FZ4076-T	.043" (1.10 mm)
E3FZ4076-U	.045" (1.15 mm)
E3FZ4076-V	.047" (1.20 mm)
E3FZ4076-W	.049" (1.25 mm)
E3FZ4076-X	.051" (1.30 mm)

- Remove gauge bar, shim spacer and bearing retainer. Install new oil seal in retainer. Position shim on ball bearing outer race. Install bearing retainer with new "O" ring by tapping evenly around outside edge of retainer face. Dip "O" ring in transmission fluid prior to installation.
- Loctite bolt threads and install differential bearing retainer-to-case attaching bolts. Tighten bolts to specifications. See **TORQUE SPECIFICATIONS**.

PINION CARRIERS

NOTE: Individual parts of planetary carrier are not serviceable. If any part is worn or damaged, complete planetary carrier must be replaced.

Inspection

Inspect pins and shafts for loose fit and/or complete disengagement. Check shaft welds. Inspect pinion gears for damage or excessively worn teeth. Check for free rotation of pinion gears.

INPUT, IDLER & FINAL DRIVE GEARS

Inspection

Inspect gear teeth. They should be smooth with a uniform contact pattern without signs of excessive wear. Replace any gear which is cracked, chipped, broken or excessively worn.

TRANSAXLE CASE

Inspection

Inspect case for cracks and stripped threads. Inspect gasket surfaces and mating surfaces for burrs. Check vent for obstructions, and check all fluid passages for obstructions and leakage. Inspect case bushing for scores. Check all parking linkage parts for wear or damage.

NOTE: **Repair kits are available for servicing damaged case threads.**

TRANSAXLE REASSEMBLY

NOTE: **Handle all parts carefully to avoid damaging bearings and mating surfaces. Lubricate all parts with clean ATF. Use petroleum jelly on gaskets, thrust washers and needle bearings to retain them in place. Use all new gaskets and seals, and tighten bolts evenly.**

1. Clean idler gear shaft threads and install a new "O" ring. Place idler gear and shaft in case. Insert a 12-mm Allen wrench in idler gear shaft and position it to catch on band anchor strut.
2. Apply Loctite to idler shaft attaching nut. Install and tighten nut to specification using a 32-mm 12-point socket. Refer to the **TORQUE SPECIFICATIONS** . Install No. 1 thrust bearing and input gear No. 2 caged needle bearing. See **Fig. 15** .

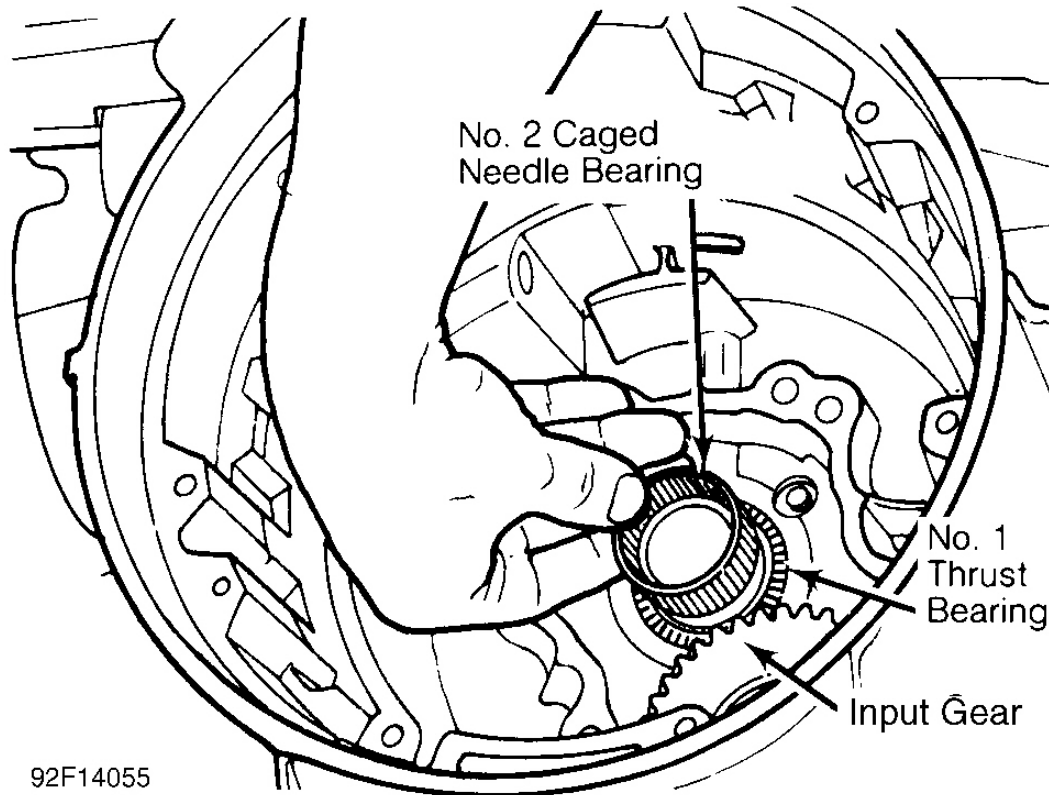


Fig. 15: Installing Thrust Bearing & Caged Needle Bearing
Courtesy of FORD MOTOR CO.

NOTE: Before installing final drive housing, ensure band strut is rotated into its operating position. Transmission case and housing are matched parts. If one is damaged, both must be replaced.

3. Install input gear over reactor support. Install No. 3 thrust bearing (needle) on input gear. See **Fig. 20** . Position final drive housing in case. Ensure it is firmly seated on alignment dowels. Install NEW final drive housing attaching bolts and tighten to specification. See **TORQUE SPECIFICATIONS** .
4. Install No. 4 thrust washer. Install sun gear and drum. Install intermediate band. Ensure band lug engages stud. Place servo piston in case and install Remover/Installer (T81P-70027-A).
5. Compress piston spring far enough to allow installation of retaining ring. Install servo retaining ring and before removing tool, ensure piston rod has engaged band lug.
6. Place reverse clutch cylinder in case and tap cylinder in using a hammer handle. Using Seal Protector (T81P-70402-A), apply even pressure and install reverse clutch piston in clutch cylinder. Remove seal protector. Install No. 5 thrust washer on planetary gear set. Install assembly on sun gear.

NOTE: Before installing reverse clutch piston return spring and holder assembly,

reverse clutch clearance must be checked in the following manner:

7. Install clutch pack wave spring, clutch pack and pressure plate then install clutch pack retaining ring. Clutch pack contains 3 friction and 3 steel plates. Using a feeler gauge, measure clearance between retaining ring and pressure plate at 2 places 180 degrees apart. See **Fig. 16**.
8. If average clearance is .030-.055" (.76-1.40 mm), clutch clearance is correct. If clearance is less than .030" (.76 mm), install a thinner retaining ring. If clearance is greater than .055" (1.40 mm), install a thicker retaining ring.

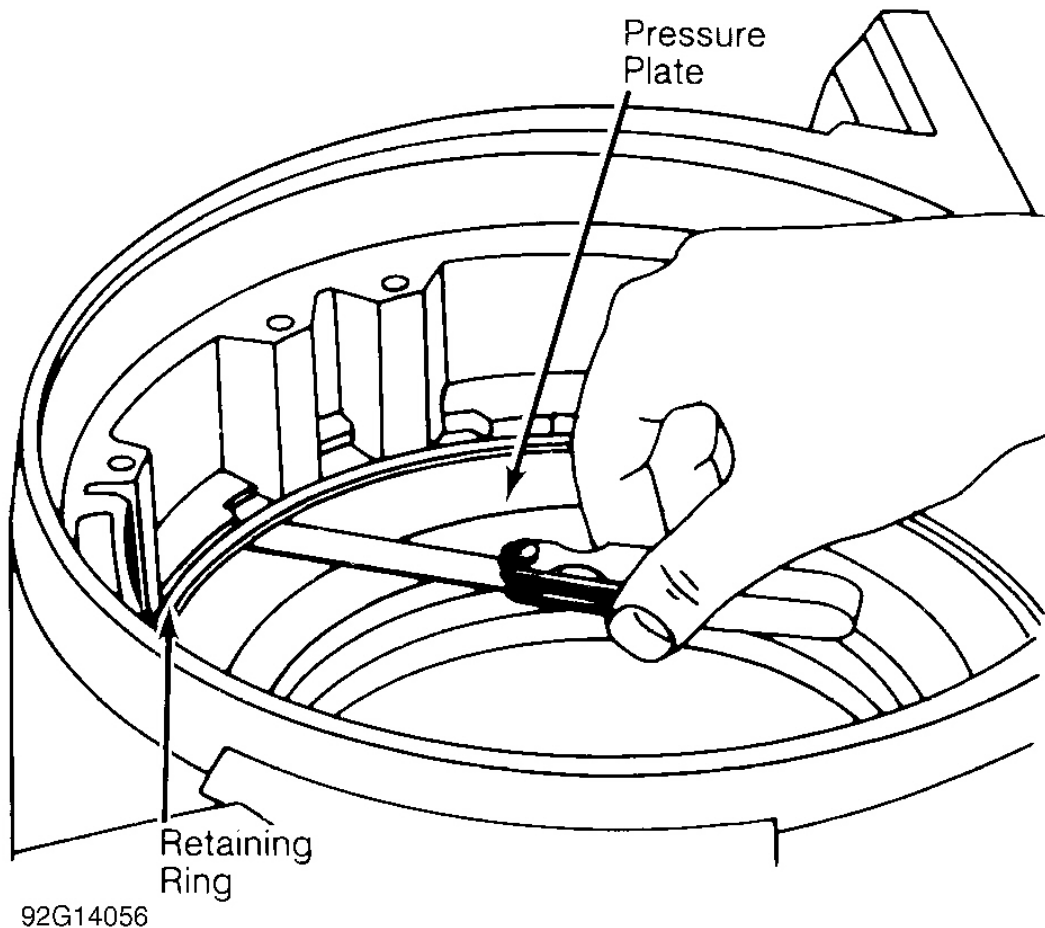


Fig. 16: Measuring Reverse Clutch Clearance
Courtesy of FORD MOTOR CO.

NOTE: Whenever new retaining ring is installed, repeat clearance check. See **REVERSE CLUTCH RETAINING RING THICKNESSES** for available reverse clutch retaining rings.

REVERSE CLUTCH RETAINING RING THICKNESSES

Part No.	(1) Thickness
E6FZ7D483-A	.051" (1.30mm)
E6FZ7D483-B	.072" (1.83mm)
E6FZ7D483-C	.085" (2.16mm)
E6FZ7D483-D	.102" (2.59mm)
(1) Retaining ring thickness has .002" (.05 mm) tolerance.	

9. Remove reverse clutch pack retaining ring, pressure plate, clutch pack and wave spring. Install reverse clutch return spring and holder assembly. Reinstall wave spring, clutch pack, pressure plate and retaining ring.
10. Install No. 7 thrust washer on planetary assembly. Install intermediate clutch hub and ring gear assembly into case. Install direct clutch assembly into case. Position No. 10 thrust bearing (needle type) on direct clutch.
11. Install intermediate clutch assembly into case and check for proper clutch engagement as follows:
position No. 11 thrust bearing on one of the machined tabs and push bearing up against case. If bearing is flush or slightly below machined pump housing surface in case, clutch is fully engaged. If clutch is not fully engaged, reposition clutch assembly. See **Fig. 17** . Position No. 11 thrust bearing on clutch drum.
12. Install pump Alignment Pins (T81P-77100-A) and pump housing gasket. Position transaxle End Play Checking Tools (T81P-77389-A and T80L-77003-A) in intermediate clutch. See **Fig. 18** .

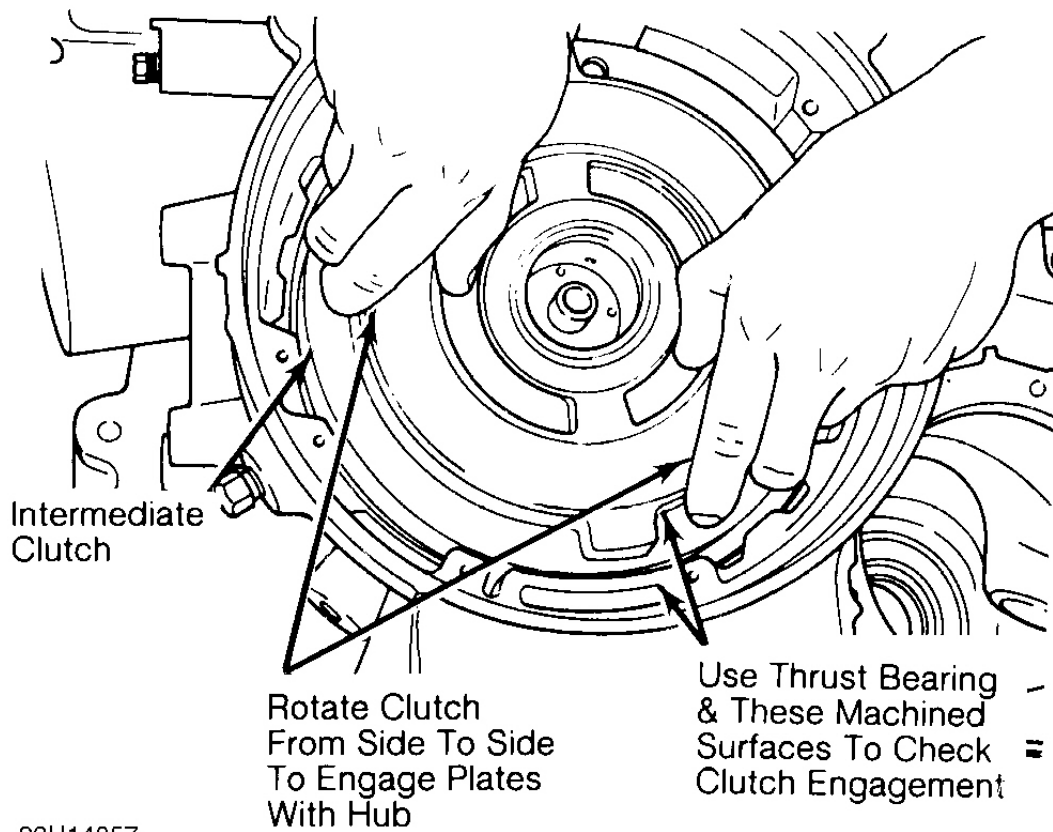


Fig. 17: Checking Intermediate Clutch for Engagement
Courtesy of FORD MOTOR CO.

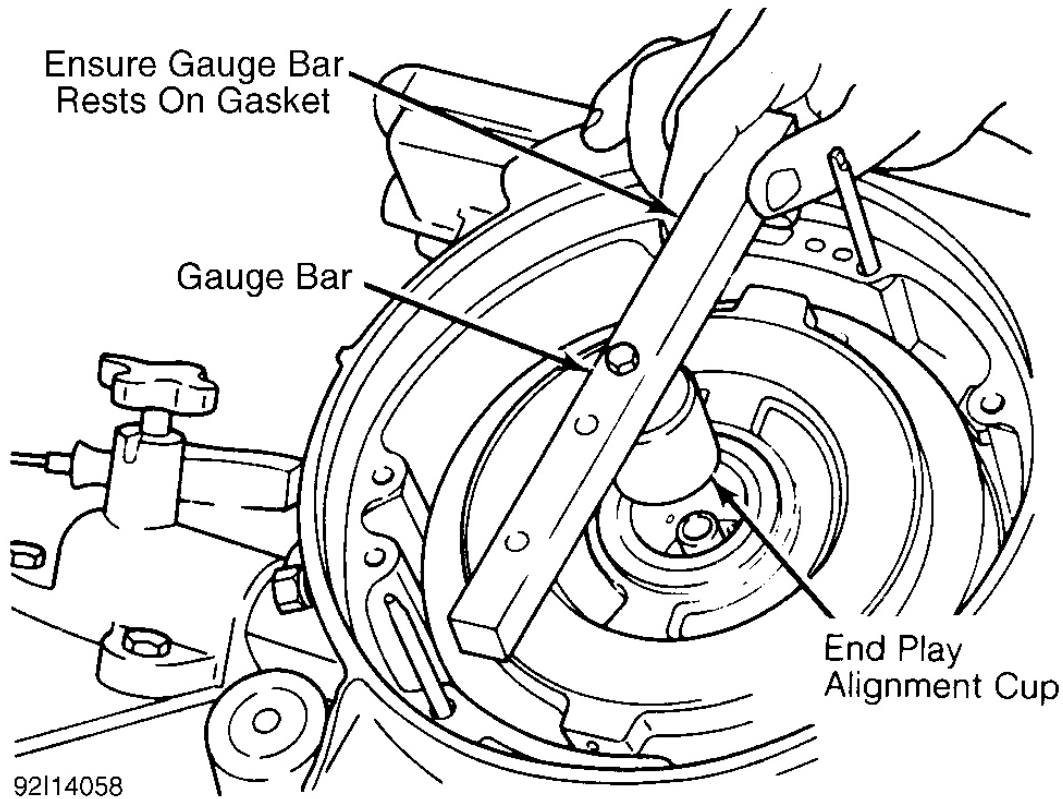


Fig. 18: Installing Transaxle End Play Measuring Tools
 Courtesy of FORD MOTOR CO.

13. Using a micrometer, measure distance from top of gauge bar to top of No. 11 thrust bearing installed on intermediate clutch. Perform measurement at 2 places, 180 degrees apart, and use average of 2 measurements. Subtract .700" (17.78 mm) thickness of gauge bar from average of 2 measurements to determine end play. Choose proper end play thrust washer. See **END PLAY THRUST WASHERS**.
14. Install No. 12 thrust washer (selective), chosen from **END PLAY THRUST WASHERS**, on oil pump. Position pump in case and tap into place using a hammer handle. Remove pump alignment pins. Install pump attaching bolts and washers to specification.

CAUTION: Oil pump attaching bolt washers provide bolt seal and must not be substituted. Failure to use sealing washers may result in fluid leak.

END PLAY THRUST WASHERS

End Play: In. (mm) (1)	Nylon Washer Color	Metallic Washer ID
.057-.070 (1.46-1.77)	Green	EA
.070-.079 (1.77-2.00)	Black	AA

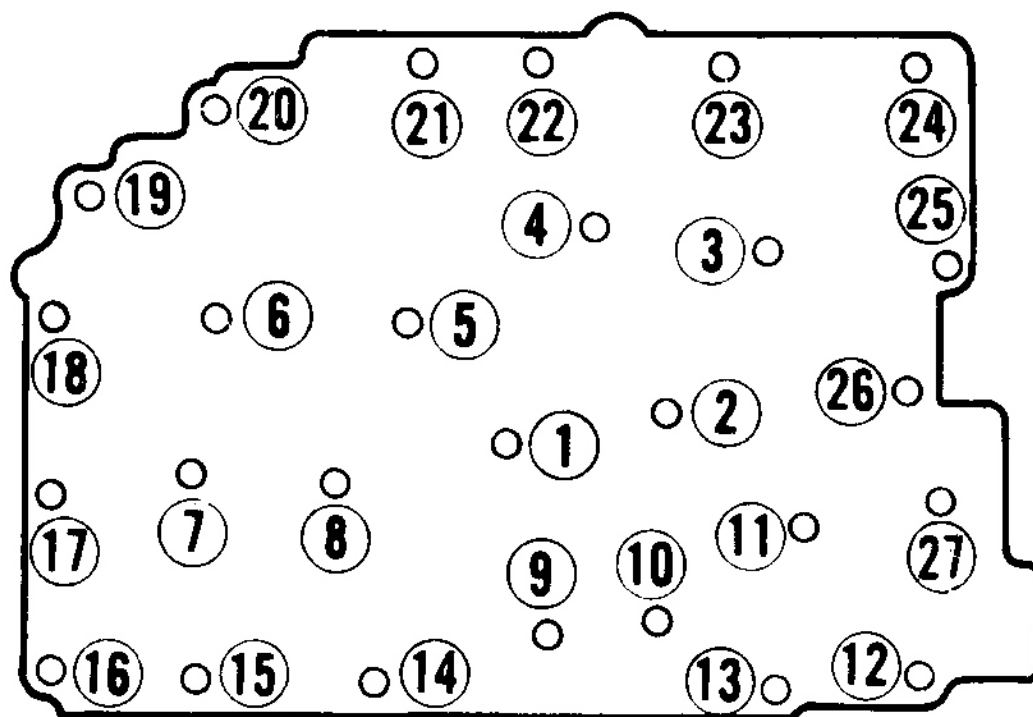
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.079- .087 (2.00-2.20)	Natural	BA
.087-.095 (2.20-2.41)	Blue	CA
(1) If thrust washer thickness is not known, see END PLAY THRUST WASHER THICKNESS .		

END PLAY THRUST WASHER THICKNESS

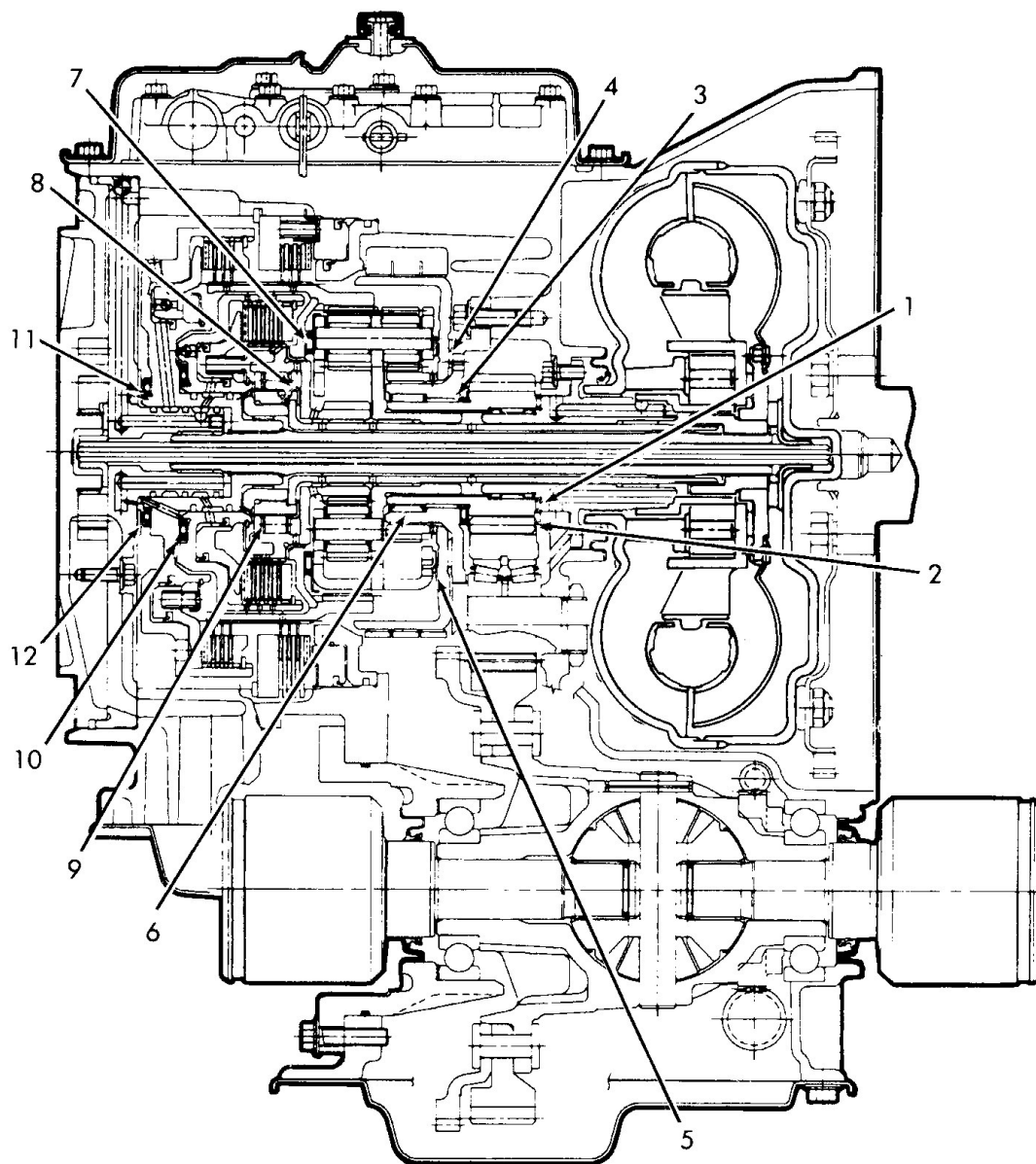
Thrust Washer ID/Color	Thickness: In. (mm)
AA/Black	.055-.057 (1.40-1.45)
BA/Natural	.063-.065 (1.60-1.65)
CA/Blue	.071-.073 (1.80-1.85)
EA/Green	.045-.047 (1.15-1.20)

15. Position differential assembly in transaxle case. Install differential bearing spacer shim. Install new "O" ring on differential retainer and position retainer in case (tap into place if necessary). Loctite bolt threads and install retainer attaching bolt. Tighten bolts to specification.
16. Position new seal on oil filter and install filter in case. Install oil pan using a new gasket. Install new seal on speedometer driven gear retainer and position retainer in case. Tap retainer into position using a plastic hammer. Ensure retaining pin hole is aligned. With retainer properly positioned, tap retaining pin into case.
17. Install governor into case. Install new seal on governor cover and position cover on case. Tap cover into place using plastic hammer and install cover retaining wire.
18. Position governor screen into case bore. Position valve body gasket on case and install alignment pins to hold gasket in place. Place valve body in position in case and at the same time connect "Z" link to manual valve.
19. Connect throttle valve control spring to inner lever cam and to separator plate. With valve body correctly positioned, ensure roller on end of throttle valve plunger has engaged cam on end of throttle lever shaft.
20. Install the detent roller assembly, baffle plates and all remaining valve body attaching bolts. Tighten the valve body attaching bolts in sequence and to specification. See **Fig. 19** . For tightening specifications, see **TORQUE SPECIFICATIONS** . Connect throttle return spring to spring anchor on throttle lever.
21. Position a new valve body cover gasket on case. Install cover and tighten attaching bolts to specification. Install oil pump shaft. Install new seal on dipstick tube and install tube in case. Install torque converter into transaxle case.



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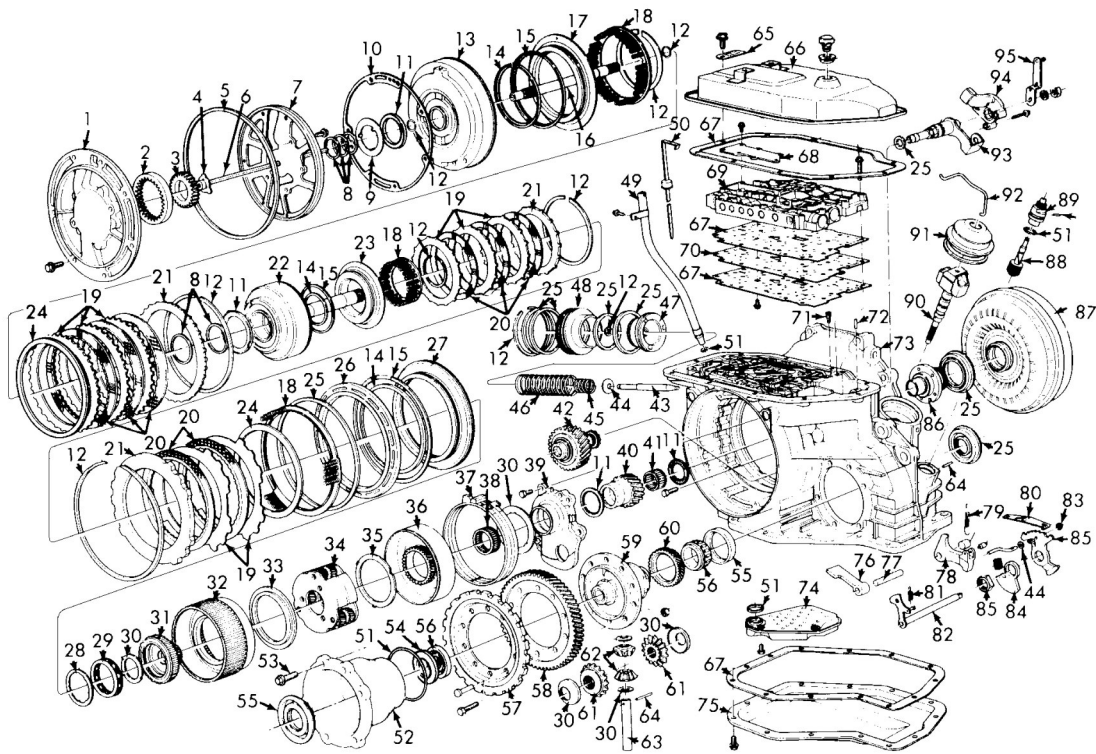
Fig. 19: Tightening Sequence for Valve Body Bolts
Courtesy of FORD MOTOR CO.



- | | | |
|------------------------------|-------------------------|---------------------------|
| 1. No. 1 Thrust Bearing | 6. No. 4 Thrust Bearing | 10. No. 10 Thrust Bearing |
| 2. Input Gear Needle Bearing | 7. No. 5 Thrust Washer | (Direct Clutch) |
| 3. No. 3 Thrust Bearing | (Rear Planetary) | 11. No. 11 Thrust Bearing |
| 4. No. 6 Needle Bearing | 8. No. 8 Thrust Washer | (Intermediate Clutch) |
| 5. No. 5 Thrust Washer | 9. No. 9 Thrust Bearing | 12. No. 12 Thrust Washer |
| (Front Planetary) | | Selective (Front Pump) |

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Fig. 20: Cross-Sectional View Of ATX Bearing Locations
Courtesy of FORD MOTOR CO.



- | | | | |
|--------------------------------|---|-------------------------------|--------------------------------|
| 1. Oil Pump Body | 26. Reverse Clutch Piston | 49. Oil Filler Tube | 73. Transaxle Case |
| 2. Pump Driven Gear | 27. Reverse Clutch Drum | 50. Dipstick | 74. Oil Filter |
| 3. Pump Drive Gear | 28. One-Way Clutch Bearing | 51. "O" Ring | 75. Oil Pan |
| 4. Pump Gear Insert | 29. Spring & Roller Assembly | 52. Differential Retainer | 76. Band Anchor Strut |
| 5. Oil Pump Seal | 30. Thrust Washer | 53. Retainer Bolt | 77. Park Pawl Shaft |
| 6. Oil Pump Drive Shaft | 31. 1st-3rd Reverse Gear | 54. Side Bearing Preload Shim | 78. Park Pawl Assembly |
| 7. Clutch Support | 32. Intermediate Clutch Hub & Ring Gear | 55. Oil Seal | 79. Park Pawl Return Spring |
| 8. Teflon Oil Seals | 33. Planetary Rear Thrust Bearing | 56. Differential Side Bearing | 80. Manual Valve Detent Spring |
| 9. End Play Thrust Washer | 34. Planetary Assembly | 57. Parking Pawl Gear | 81. T.V. Lever Control Spring |
| 10. Pump Gasket | 35. Planetary Front Thrust Bearing | 58. Ring Gear | 82. T.V. Lever Actuating Shaft |
| 11. Thrust Bearing | 36. Sun Gear & Drum Assembly | 59. Differential Case | 83. Nut |
| 12. Retaining Ring | 37. Band | 60. Speedometer Drive Gear | 84. Park Pawl Actuating Lever |
| 13. Intermediate Clutch Drum | 38. Final Drive Housing Bearing | 61. Side Gears | 85. Manual Valve Inner Lever |
| 14. Inner Piston Seal | 39. Final Drive Housing | 62. Pinion Gears | 86. Reactor Support |
| 15. Outer Piston Seal | 40. Final Drive Input Gear | 63. Pinion Gear Shafts | 87. Torque Converter |
| 16. Intermediate Clutch Shaft | 41. Input Gear Bearing | 64. Retaining Pin | 88. Speedometer Driven Gear |
| 17. Intermediate Clutch Piston | 42. Idler Gear | 65. Transaxle I.D. Tag | 89. Speedometer Gear Retainer |
| 18. Return Spring Assembly | 43. Servo Rod | 66. Valve Body Cover | 90. Governor |
| 19. Steel Clutch Plates | 44. Washer | 67. Gasket | 91. Governor Cover |
| 20. Friction Clutch Plates | 45. Cushion Spring | 68. Baffle Plate | 92. Retainer Wire |
| 21. Pressure Plate | 46. Piston Spring | 69. Valve Body Assembly | 93. Manual Lever |
| 22. Direct Clutch Drum | 47. Servo Piston | 70. Separator Plate | 94. Neutral Safety Switch |
| 23. Direct Clutch Piston | 48. Servo Cover | 71. Governor Screen | 95. T.V. Outer Lever |
| 24. Wave Spring | | 72. Dowel Pin | |
| 25. Seal | | | |

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Fig. 21: Exploded View Of ATX Automatic Transaxle Assembly
 Courtesy of FORD MOTOR CO.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Cooler Tube Fitting-To-Case	18-23 (24-31)
Differential Retainer-To-Case Bolt	15-19 (20-26)

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Final Drive Housing-To-Case Bolt	18-23 (24-31)
Flex Plate-To-Crankshaft	54-64 (73-87)
Idler Shaft Nut	80-100 (108-136)
Inner Manual Lever-To-Shaft Nut	32-48 (43-65)
Oil Pan-To-Case Bolt	15-19 (20-26)
Ring Gear-To-Differential Case Bolt	55-70 (75-95)
Torque Converter-To-Flex Plate	23-39 (31-53)
INCH Lbs. (N.m)	
Filter-To-Case Bolt	84-108 (9-12)
Oil Pump Assembly-To-Case Bolt	72-96 (8-11)
Oil Pump Support-To-Pump Body Bolt	72-96 (8-11)
Outer Throttle Lever-To-Shaft Nut	90-114 (10-13)
Pressure Test Port Plug-To-Case	48-96 (5-11)
Reactor Support-To-Case Bolt	72-96 (8-11)
Separator Plate-To-Valve Body Bolt	72-96 (8-11)
Valve Body-To-Case Bolt	72-96 (8-11)
Valve Body Cover-To-Case Bolt	84-108 (9-12)