

200C

INDEX

RANGE REFERENCE CHART	2
GENERAL DESCRIPTION	
LINE PRESSURE CHECKS	. 7
DIAGNOSTIC CHARTS	
TCC DIAGNOSTIC CHARTS	
OIL PRESSURE PASSAGES	18
TRANSMISSION DISASSEMBLY	
COMPONENT REPAIR AND TRANSMISSION ASSEMBLY	39
SPEEDOMETER DRIVE GEAR LOCATION	
REAR END PLAY CHECK	47
OIL PUMP CHECK BALLAND SCREEN LOCATION	
FRONT END PLAY CHECK	58
CHECK BALL LOCATIONS	
THRUST WASHER AND BUSHING LOCATIONS	65
TORQUE SPECIFICATIONS	
~	
TECHNICAL BULLETINS	
NO TCCAPPLY	
ENGINE STALL, REVERSE ONLY	
1ST GEAR ONLY, NO UPSHIFT AND NO REVERSE	
GOVERNOR GEAR AND OUTPUT SHAFT TOOTH COUNTS	
FORWARD CLUTCH CHANGES	
W. (DOW D. OWN) GIVEN CO. VIV.	

ROAD TEST PROCEDURE

- Perform the road test following the sequence that is given below.
- MPH (KPH) shift points will vary with actual throttle position and driver habits.
- Compare the results of the test with shift speed chart information shown in Figure 2. Use these results and the diagnostic charts to evaluate the transmission.
- This test should only be performed when the traffic and road conditions permit.
- Observe all traffic safety regulations.

GARAGE SHIFT CHECK

- (1) Start the engine.
- (2) Depress the service brake pedal.
- (3) Move the gear selector lever to the "REVERSE" (R) position, and then to the "NEUTRAL" (N) position, and then to the "DRIVE" (D) position. Gear selections should be immediate, but should not be harsh.

UPSHIFTS AND TCC APPLY

- (1) Place the gear selector in "DRIVE" (D) position.
- (2) Accelerate using a steady throttle pressure, with the pedal at approximately 1/3 throttle.
- (3) Note the shift speeds and the gear engagements for both 2nd and 3rd gear.
- (4) Note the speed at which the TCC applies, and the quality of the TCC apply. This should occur with the transmission in 3rd gear. If the apply is never noticed, refer to the diagnostic charts.
 - NOTE: The converter clutch will not engage until engine coolant has reached a minimum of operating temperature of approximately 130 F.

PART THROTTLE DETENT DOWNSHIFTS

- (1) At vehicle speeds of 40-55 MPH (64-88 KPH), quickly depress the accelerator to a half open position and observe the following:
- (2) The converter clutch releases.
- (3) The transmission downshifts to 2nd immediately.

FULL THROTTLE DETENT DOWNSHIFTS

- (1) At vehicle speeds of 40-55 MPH (64-88 KPH), quickly depress the accelerator to a wide open position and observe the following:
- (2) The converter clutch releases.
- (3) The transmission downshifts to 2nd immediately.

MANUAL DOWNSHIFTS

- (1) At vehicle speeds of 40-55 MPH (64-88 KPH), release the accelerator pedal while moving the gear selector to "Second" (2) gear and observe the following:
- (2) The torque converter clutch releases.
- (3) The transmission downshift to 2nd gear should be immediate.
- (4) Engine should now slow vehicle down.
- (5) Move the selector to "Drive" (D) and accelerate to 25 MPH (40 KPH). Release the accelerator while moving the gear selector to "First" (1) gear and observe the following:
- (6) The torque converter clutch releases.
- (7) The transmission downshift to 1st gear should be immediate.
- (8) Engine should now slow vehicle down.

COASTDOWN DOWNSHIFT

- (1) With the gear selector in the "Drive" (D) position accelerate to 3rd gear with the TCC applied.
- (2) Release the accelerator pedal and lightly apply the brakes and observe the following:
- (3) The torque converter clutch releases.
- (4) Watch the downshift speeds and ensure that the downshifts occur.

MANUAL 2ND GEAR SELECTION

- (1) With vehicle stopped, place the gear selector in "Second" (2) gear, accelerate and observe the following:
- (2) The 1st to 2nd gear shift speed.
- (3) Accelerate to 30 MPH and ensure that a shift to 3rd gear does not occur.
- (4) The converter clutch should not apply.

MANUAL 1ST GEAR SELECTION

- (1) With vehicle stopped, place the gear selector in "First" (1) gear, accelerate and observe the following:
- (2) Accelerate to 20 MPH and ensure that no upshift occurs at all.
- (3) The converter clutch should not apply.

REVERSE GEAR SELECTION

(1) With vehicle stopped, place gear selector into "Reverse" (R) and slowly accelerate to observe reverse gear operation.

CONDITION	INSPECT COMPONENT	FOR CAUSE
NO DRIVE IN DRIVE RANGE (Install Pressure	Oil Level	Incorrect level. External leaks.
Gage)	Manual LinkageOil Pressure	 Maladjusted. Plugged or restricted oil screen. Oil screen gasket off location. Pump assembly - pressure regulator. Pump drive gear - tangs damaged by converter. Case - porosity in intake bore.
	• Forward Clutch	 Piston cracked, seals missing, damaged; clutch plates burned; snap ring out of groove. Oil seal rings missing or damaged on turbine shaft; leak in feed circuits; pump to case gasket mispositioned or damaged. Clutch housing ball check stuck or missing. Cup plug leaking or missing in the rear of the turbine shaft in the clutch apply passage. Wrong forward clutch piston assembly or wrong number of clutch plates. Feed orifice plugged in turbine shaft.
	Roller Clutch	— Springs missing.— Rollers galled or missing.
Refer To Oil Pressure	Throttle Valve Cable	- Misadjusted, binding, unhooked or broken.
	Throttle Valve Assembly No. 1 Ball Check	 Throttle lever and bracket assy, binding, unhooked or mispositioned. Throttle valve or plunger valve binding. Shift T.V. valve binding. Missing or leaking.
	Pressure Regulator Valve & Spring	 Valve binding. Wrong spring - check pressures. Oil pressure control orifice in pump cover plugged, causing high oil pressure. Pressure regulator bore plug leaking.
	Manual Valve	— Unhooked.
	• Intermediate Boost Valve	 Valve binding - pressures will be incorrect in intermediate and low ranges only. Orifice in spacer plate at end of valve plugged.
	Reverse Boost Valve	 Valve binding - pressures will be incorrect in reverse only. Orifice in spacer plate at end of valve plugged.

CONDITION	INSPECT COMPONENT	FOR CAUSE
NO ENGINE BRAKING IN L2 RANGE - 2ND GEAR	Intermediate Boost Valve	Binding in valve body.
LE HANGE - ZIND GEAR	 Intermediate Rev. Ball Check (No. 3 Ball) 	Mispositioned or missing.
	Shift T.V. Ball Check (No. 1 Ball)	Mispositioned or missing.
	Intermediate Servo Assy.	Servo to cover oil seal ring missing or damaged.
	Intermediate Band	Off anchor pin Broken or burned.
NO ENGINE BRAKING IN L1 RANGE - 1ST GEAR	Low Overrun Clutch Valve	Binding in valve body.
2 TOT GEATT	Low/Reverse Clutch Assy.	 Piston seals broken or missing. Porosity in piston or housing. Clutch housing snap ring out of case. Cup plug or rubber seal missing or damaged between case and low reverse clutch housing.
NO PART THROTTLE	Throttle Plunger Bushing	— Passages not open.
DOWNSHIFT (Install Pressure Gage)	• 2-3 Throttle Valve Bushing	- Passages not open.
	Valve Body Gaskets	Mispositioned or damaged.
	Spacer Plate	Hole plugged or undrilled.
	Throttle Valve Cable	— Improperly set.
	Shift T.V. Valve	Binding.
	Throttle Valve	— Binding.
OW OR HIGH SHIFT	Throttle Valve Cable	Binding or disconnected.
POINTS (Install Pressure Gage)	Throttle Valve	— Binding.
	Shift T.V. Valve	— Binding.
	• T.V. Shift Ball, (No. 1 Ball)	Missing or mispositioned.
	Throttle Valve Plunger	— Binding.
i	• 1-2 Or 2-3 Throttle Valves	Binding in bushings.
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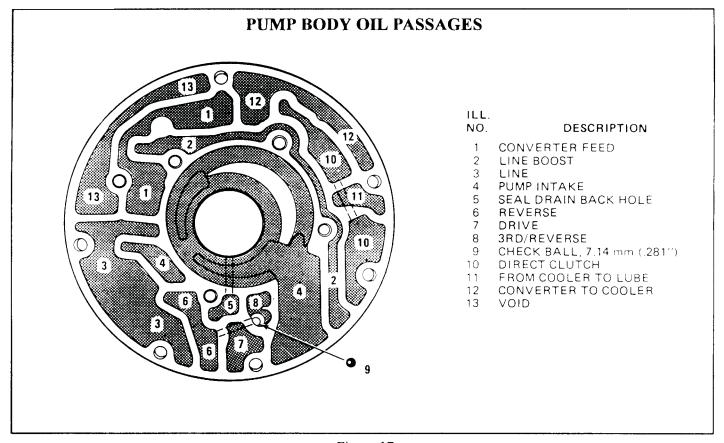


Figure 17

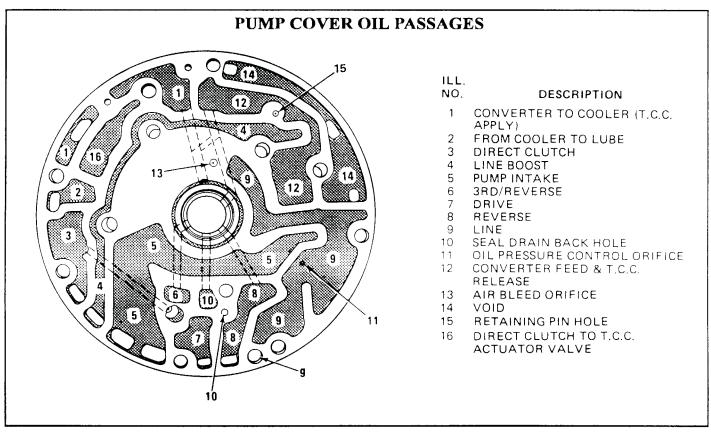


Figure 18
AUTOMATIC TRANSMISSION SERVICE GROUP

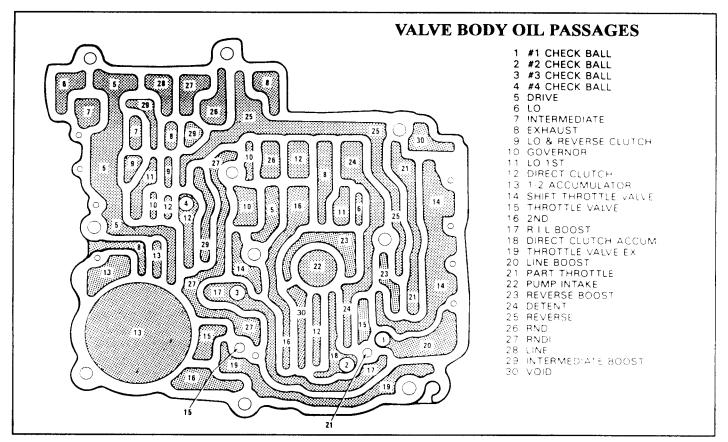


Figure 25

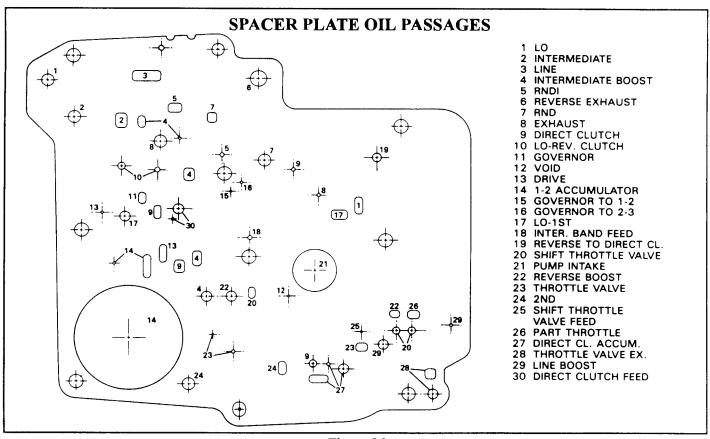


Figure 26
AUTOMATIC TRANSMISSION SERVICE GROUP

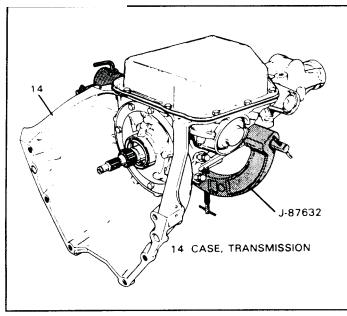


Figure 33

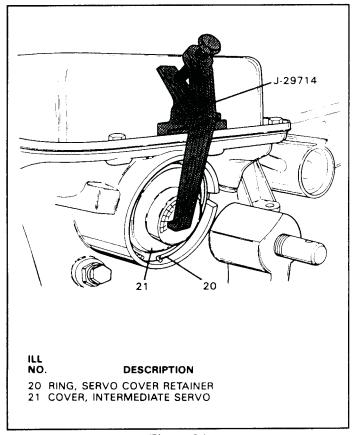


Figure 34

GENERAL SERVICE INFORMATION

OIL SEAL RINGS

If any seal rings are damaged, cut or do not rotate freely in their groove, be certain to check the ring groove for debeis, burrs, or damage.

THRUST WASHER SURFACES Thrust washers and bearing surfaces may appear to be polished. This is a normal condition, and should not be considered damage.

SNAP RINGS

Do not over expand snap rings during removal and installation process.

TRANSMISSION DISASSEMBLY

MAIN CASE AND EXTERNAL PARTS

- 1. Thoroughly clean the exterior of the transmission before disassembly.
- 2. Remove the torque converter from transmission.
- 3. Install J-8763-02 holding fixture on transmission case, as shown in Figure 33.
- 4. Mount holding fixture and transmission into the base on work bench, as shown in Figure 33.
- 5. Drain the transmission through the rear of the transmission into a sutiable drain pan.
- 6. Rotate the transmission with the bottom pan facing up, as shown in Figure 33.
- 7. Install servo cover compressor tool J-29714 on case with two oil pan bolts (See Figure 34).
- 8. Compress the servo cover using the bolt.
- 9. Remove the servo cover retaining ring, using a small screwdriver (See Figure 34).
- 10. Remove the servo compressor tool.
- 11. Remove the intermediate servo assembly from the case servo bore (See Figure 35).

SERVO PIN LENGTH

- 12. As a diagnostic aid, the servo pin length should now be checked for proper length.
- 13. Install J-25014-2 checking tool in intermediate servo bore, and retain with the servo cover snap ring, as shown in Figure 36. Align the retaining ring with gap at case slot.
- 14. Install pin J-25014-1, and assure tapered pin end is against band apply lug (See Figure 36).
- 15. Install dial indicator against top of J-25014-2 zero post, as shown in Figure 36.
- 16. Apply 100 in.lbs. to hex nut on the gaging tool as shown in Figure 36.
- 17. Use the servo pin selection chart in Figure 37 to determine the correct pin length.

I	ILL.
	NO. DESCRIPTION
	601 BAND, INTERMEDIATE
l	602 BUSHING, DIRECT CLUTCH (FRONT) 603 RETAINER, CHECK W/BALL
	804 HOUSING, DIRECT CLUTCH & SEAL
	605 BUSHING, DIRECT CLUTCH (REAR)
l	606 SEAL KIT, DIRECT CLUTCH
	607 PISTON ASSEMBLY, DIRECT CLUTCH 608 RING, DIRECT CLUTCH APPLY
i	609 GUIDE, RELEASE SPRING
ı	610 RETAINER & SPRING
I	611 RING, SPRING RETAINER (SNAP)
ı	612 PLATE, DIRECT CLUTCH (FLAT STEEL) 2.324 613 PLATE, DIRECT CLUTCH (FLAT STEEL)
	614 PLATE, DIRECT (FORWARD CLUTCH BACKING)
I	615 RING, SNAP (FORWARD CLUTCH HOUSING)
ı	616 SEAL, RING (TURBINE SHAFT)
ı	617 WASHER, DIRECT & FORWARD CLUTCH (THRUST) 618 SEAL, TURBINE SHAFT TO SELECTIVE WASHER
İ	619 HOUSING ASSEMBLY, FORWARD CLUTCH
l	620 RETAINER, CHECK VALVE W/BALL
	621 PLUG, CUP TURBINE SHAFT 622 SEAL KIT, FORWARD CLUTCH PISTON
	623 PISTON, FORWARD CLUTCH W/RING
	624 RING, FORWARD CLUTCH APPLY
	625 RETAINER, FORWARD CLUTCH W/SPRING
	626 RING, SNAP FORWARD SPRING RETAINER 627 PLATE, FORWARD CLUTCH (WAVED)
	628 PLATE, FORWARD CLUTCH (FLAT STEEL) 2.045
	629 PLATE, FORWARD CLUTCH BACKING
	630 PLATE, FORWARD CLUTCH (FLAT STEEL) 6.30mm
	631 RING, DIRECT CLUTCH PLATE HOUSING (SNAP) 632 WASHER, THRUST SELECTIVE (FRONT)
	633 RING, OUTPUT SHAFT (SNAP)
	634 WASHER, SELECTIVE
	635 WASHER, FRONT INTERNAL GEAR 636 GEAR, FRONT INTERNAL /BUSHING
	637 BUSHING, FRONT INTERNAL GEAR
	638 BEARING, FRONT INTERNAL CARRIER THRUST
	639 CARRIER, FRONT 640 BEARING, FRONT CARRIER SUN GEAR W/RACE
	641 GEAR, FRONT SUN
-	642 RING, SNAP (DRUM TO SUN GEAR)
	643 DRUM, INPUT
	644 BUSHING, REAR SUN GEAR 645 GEAR, REAR SUN W/BUSHING
i	646 WASHER, THRUST (DRUM TO HOUSING)
Ì	647 RING, SNAP HOUSING TO CASE
ı	648 BUSHING, REVERSE CLUTCH HSG. 53.13 X 9.53 649 HOUSING ASSEMBLY, LO & REVERSE CLUTCH
	650 SPACER, REVERSE CLUTCH HOUSING
	651 SEAL KIT, REVERSE CLUTCH
I	652 PISTON ASSEMBLY, LO & REVERSE CLUTCH 653 RING, LO & REVERSE
ı	854 SPRING, REVERSE CLUTCH RELEASE (WAVE)
	655 RETAINER, LO & REVERSE CLUTCH SUPPORT
i	656 RING, RETAINER REVERSE CLUTCH HSG. (SNAP) 657 PLATE, REVERSE CLUTCH (WAVED)
I	658 PLATE, REVERSE CLUTCH (FLAT)
1	659 PLATE, REVERSE CLUTCH (FACED)
1	660 RACE, LO ROLLER CLUTCH 661 ROLLER, LO CLUTCH
Į	662 WASHER, REAR CARRIER TO LO ROLLER CL. THRUST
Į	663 BUSHING, REAR CARRIER
	664 CARRIER ASSEMBLY, REAR (COMPLETE)
١	665 WASHER, REAR CARRIER TO INT. GEAR THRUST 666 BEARING, THRUST (SUN GEAR TO INT. GEAR)
I	667 GEAR, REAR INTERNAL
I	668 SHAFT, OUTPUT W/BUSHING
Į	669 CLIP, SPEEDO DRIVE GEAR 670 GEAR, SPEEDO DRIVE
	OTO GEAR, SI LEDO DINVE
ļ	
9	

Figure 50 Legend

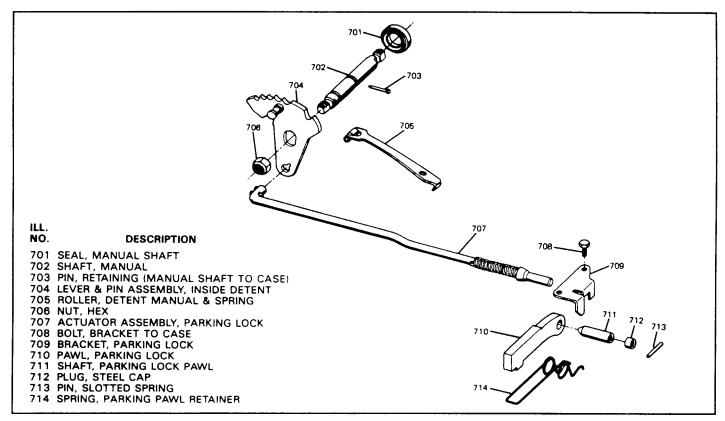


Figure 62

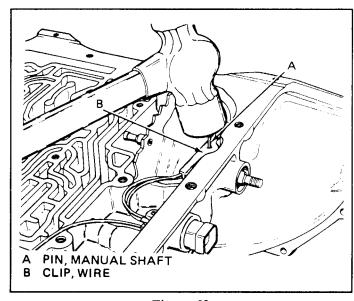


Figure 63

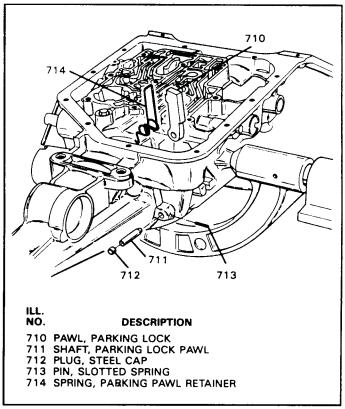
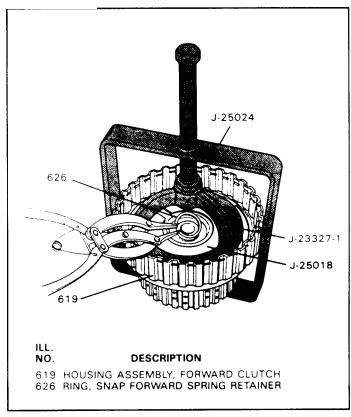


Figure 64



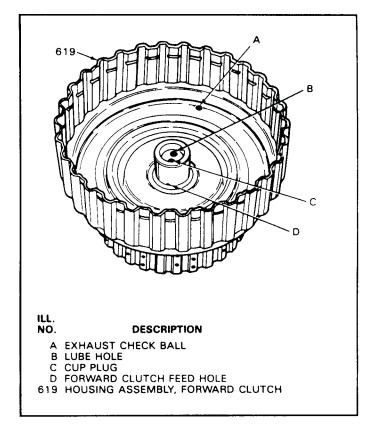


Figure 87

Figure 86

- 12. Install the forward clutch backing plate with inside bevel facing up, as shown in Figure 85.
- 13. Install the backing plate snap ring into the forward clutch housing.
- 14. Install the thrust washer (617) into forward clutch housing, as shown in Figure 84, and retain with a small amount of "Trans-Jel".
- 15. Air check the forward clutch housing by blowing compressed air into the passage between the sealing rings in the turbine shaft.
- 16. Insure that the ball capsule is not leaking and that the piston comes on with a dull thud, and no leaks past the lip seals.
- 17. Install the two sealing rings into the grooves in the turbine shaft (See Figure 84).
- 18. Set the completed forward clutch housing aside for now, until we have the direct clutch housing done.

(Continued on Page 50)

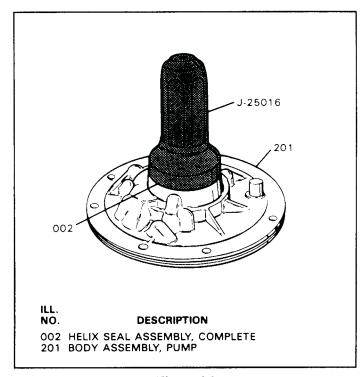


Figure 96

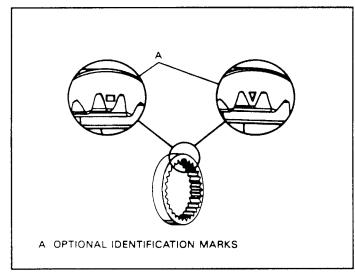


Figure 97

OIL PUMP ASSEMBLY

- 1. Clean all oil pump parts thoroughly and blow dry with compressed air.
- 2. Install new pump body bushing, if necessary, into using bushing driver or press.
- 3. Install new front pum seal into pump body using seal driver, as shown in Figure 96.
- 4. Install TCC screen and orifice cup plug into the pump body in location shown in Figure 98, if it was removed. This cup plug MUST be there and the screen MUST be free of debris, or you will have Lock-Up problems.

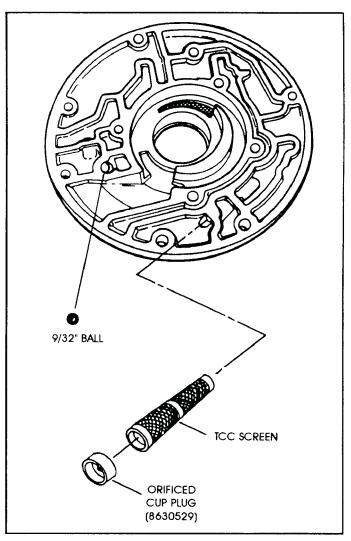


Figure 98

- 5. Install the outer pump gear into the pump body with the identification marks (See Figure 97) facing "DOWN" towards the pump pocket.
- 6. Install the inner pump gear into the pump body with the identification marks on the drive tangs facing "UP" towards the pump cover.
- 7. Lubricate the pump gears with transmission fluid.
- 8. Install the 9/32" (.281") checkball into the pump body in the location shown in Figure 98.
- 9. This checkball MUST be 9/32" (.281") diameter and no smaller. Retain the checkball with small "Trans-Jel".

(Continued on Page 54)

Thistenance (man)	Thickness (in.)	Identification		D. A.N
Thickness (mm)		Number	Color	Part Number
1.66 - 1.77	0.065 - 0.070	1	_	8639291
1.79 - 1.90	0.070 - 0.075	2	_	8639292
1.92 - 2.03	0.076 - 0.080	3	Black	8639293
2.05 - 2.16	0.081 - 0.085	4	Lt. Green	8639294
2.18 - 2.29	0.086 - 0.090	5	Scarlet	8639295
2.31 - 2.42	0.091 - 0.095	6	Purple	8639296
2.44 - 2.55	0.096 - 0.100	7	Cocoa Brown	8639297
2.57 - 2.68	0.101 - 0.106	8	Orange	8639298
2.70 - 2.81	0.106 - 0.111	9	Yellow	8639299
2.83 - 2.94	0.111 - 0.116	10	Lt. Blue	8639300
2.96 - 3.07	0.117 - 0.121	11	Blue	8639301
3.09 - 3.20	0.122 - 0.126	12	_	8639302
3.22 - 3.33	0.127 - 0.131	13	Pink	8639303
3.35 - 3.46	0.132 - 0.136	14	Green	8639304
3.48 - 3.59	0.137 - 0.141	15	Gray	8639305

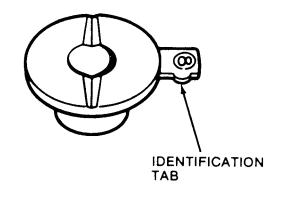


Figure 106

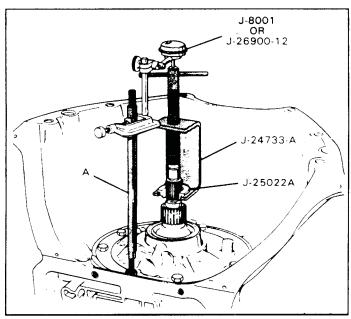


Figure 107

FRONT END PLAY MEASUREMENT

- 1. Install dial indicator and the turbine shaft lifting tool on transmission, as shown in Figure 107.
- 2. Remove all rear end play by turning the adjusting screw in on the holding fixture on the rear of the transmission.
- 3. Set the dial indicator to zero.
- 4. Pull the turbine shaft upward with the lifting tool (See Figure 107), and read front end play.
- 5. Front end play should be .015" to .025".

NOTE:

REAR END PLAY SHOULD ALREADY HAVE BEEN RECORDED. NEVER LET REAR END PLAY EXCEED FRONT END PLAY.

6. If more or less end end play is required, select the proper thrust washer from the chart in Figure 106 and install. The selective washer which controls front end play is placed on top of the output shaft before the drums are installed, and is shown in Figure 106.

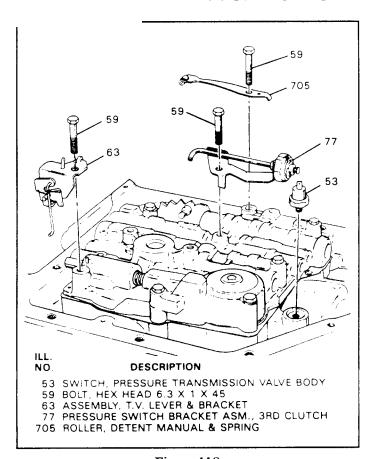


Figure 118

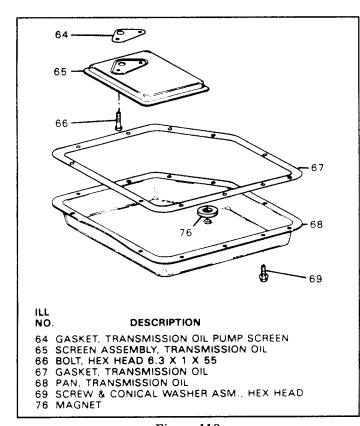


Figure 119

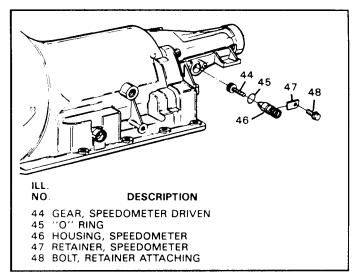


Figure 120

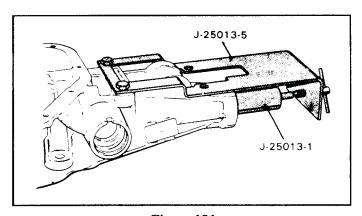


Figure 121

(Continued from Page 63)

- 15. Install manual detent roller and spring assembly as shown in Figure 118.
- 16. Install the throttle lever and bracket assembly and retain with valve body bolt (See Figure 118).
- 17. Install the 3rd clutch pressure switch, as shown in Figure 118.
- 18. Install the remaining valve body bolts and torque to 11 ft.lbs.
- 19. Install governor pressure switch (If Used), and connect all wires, and install into clips.
- 20. Install new filter and gasket and torque the bolts to 11 ft.lbs. (See Figure 119).
- 21. Install new pan gasket and bottom pan and torque bolts to 12 ft.lbs.
- 22. Install speedometer driven gear and housing into case bore and torque bolt to 8 ft.lbs., as shown in Figure 120.
- 23. Remove output shaft holding fixture from the rear of transmission (See Figure 121).

THM 200C NO CONVERTER CLUTCH APPLY, OR HARSH CONVERTER CLUTCH APPLY

CHANGE: Beginning on October 8, 1986 (Julian Date 281), a new design turbine shaft that incorporates a ball capsule to cushion converter clutch apply, was introduced on ALL 1987 model THM 200C transmissions, as shown in Figure 123.

This change made it necessary to remove the orifice cup plug (222), shown in Figure 124, that was used to cushion converter clutch apply on ALL PREVIOUS model THM 200C transmissions.

INTERCHANGEABILITY:

- (1) If you are using the new design turbine shaft with the ball capsule, the orifice cup plug (222) shown in Figure 124, MUST BE REMOVED.
 - IF YOU INSTALL THE NEW DESIGN TURBINE SHAFT WITH ORIFICE CUP PLUG (222) IN THE TRANSMISSION, NO CONVERTER CLUTCH OR EXTREMELY LATE CONVERTER CLUTCH WILL BE THE COMPLAINT.
- (2) If you are using the previous turbine shaft without the ball capsule, the orifice cup plug (222) shown in Figure 124, MUST BE PRESENT.

IF YOU INSTALL THE PREVIOUS DESIGN TURBINE SHAFT WITHOUT ORIFICE CUP PLUG (222) IN THE TRANSMISSION, HARSH CONVERTER CLUTCH APPLY WILL BE THE COMPLAINT.

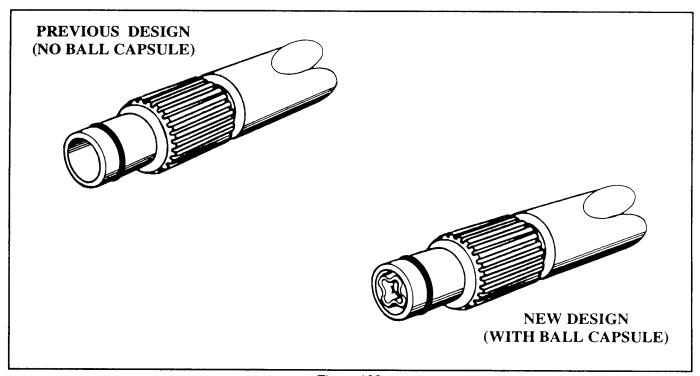


Figure 123

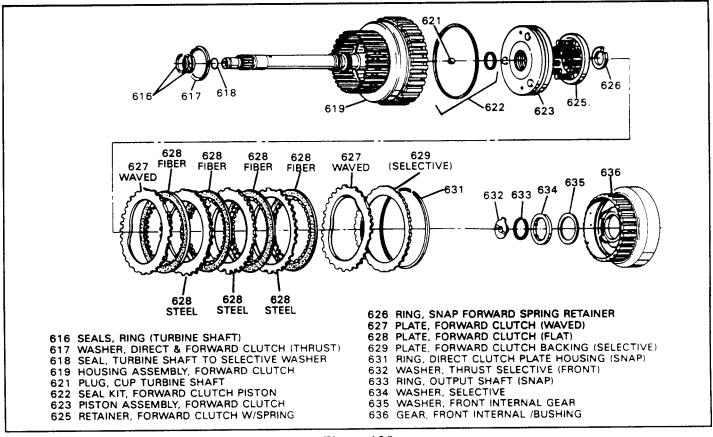
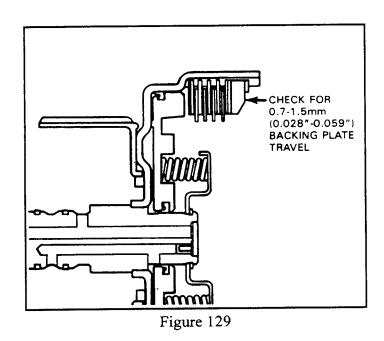


Figure 128



FORWARD CLUTCH BACKING PLATE SELECTION			
ALL MODELS			
BACKING PLATE TRAVEL = 0	.7mm - 1.5mm .028" - 0.059")		
PLATE THICKNESS	IDENTIFICATION		
3.70mm - 4.15mm (.146"163")	7		
4.25mm - 4.70mm (.167"185")	6		
4.80mm - 5.25mm (.189"207")	×		
5.35mm - 5.80mm (.211"228")	5		
5.90mm - 6.35mm (.232"250")	4		

Figure 130